

For the competent person

Installation manual



Air/flue gas system

VKK ../3

GB

Legal information

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1 Notes on the documentation

1 Notes on the documentation

1.1 Observing other applicable documents

For the competent person:

- Installation instructions for the installed Vaillant product.

1.2 Storing documents

- Pass these instructions and all other applicable documents on to the system operator.

The system operator should retain these instructions for further use.

1.3 Applicability of the instructions

These instructions apply only for the Vaillant heat generator named in the other applicable documents and referred to as the "product" in this document.



2 Safety

2.1 Action-related warnings

Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

Warning symbols and signal words



Danger!

Imminent danger to life or risk of severe personal injury



Danger!

Risk of death from electric shock



Warning.

Risk of minor personal injury



Caution.

Risk of material or environmental damage

2.2 Required personnel qualifications

These instructions are intended for the competent person.

2.2.1 Authorised competent person

The installation, assembly and removal, start-up, maintenance, repair and decommissioning of Vaillant products and accessories must only be carried out by authorised competent persons.



Note

Each competent person is qualified for specific activities on the basis of their training. They must only work on units if they have the required qualification.

When working on the units, the competent persons must observe all applicable directives, standards, laws and other regulations.

2.3 General safety information

2.3.1 Informing the responsible departments

- Before installing the flue pipe, inform the local gas supply company and the district master chimney sweep.

2.3.2 Risk of poisoning due to escaping flue gas

Improperly installed flue gas pipes may cause flue gas to escape.

- Before starting up the product, check that the whole flue pipe is securely fastened and sealed.

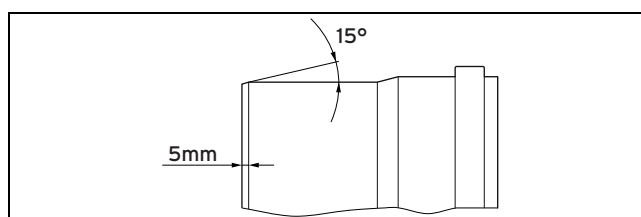
The flue gas pipe may become damaged by unforeseeable external influences.

- As part of the annual maintenance, inspect the flue gas system in terms of:
 - external faults such as brittleness and damage
 - safe pipe connections and secure fastenings

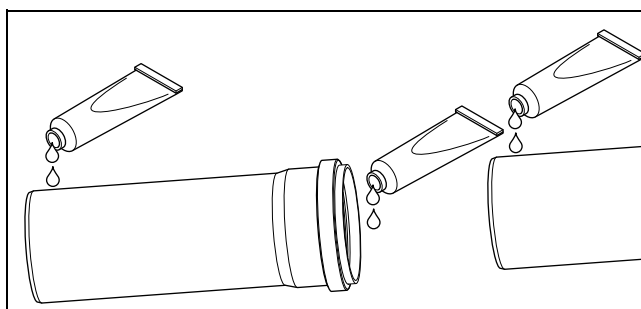
2.3.3 Risk of death from leaks in the flue gas route

Flue gas may escape from leaking pipes or damaged seals. Mineral-oil-based greases can damage the seals.

- Transport the pipes to the installation site only in the original packaging.
- If the temperature is lower than 0 °C, warm the pipes before beginning installation.
- When installing the flue gas installation, use only flue pipes of the same material.
- Do not install any damaged pipes.
- When connecting, always slide the pipes into the sleeve until they reach a stop.
- Shorten the flue pipes to the suitable lengths at right angles along their smooth side.



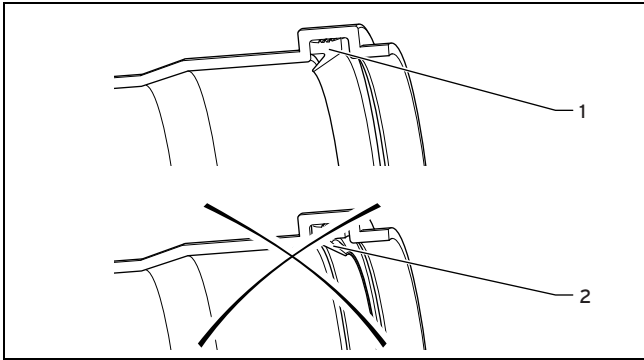
- File off sharp burrs and chamfer the ends of the pipes before assembling them so that the seals are not damaged, and dispose of the shavings.
- Never use mineral-oil-based grease for the installation.
- **Only** 130 mm diameter systems: if necessary, only use water to facilitate installation.



- **Only** 160 mm diameter and 200 mm diameter systems: Use the lubricant supplied to facilitate installation.



2 Safety



- ▶ When fitting the flue pipes, make absolutely sure the seals are correctly positioned. The lip of the seal must be facing inwards (1), not outwards (2).
- ▶ Do not use any damaged seals.

Mortar residues, shavings, etc. in the flue pipe may restrict the outward flow of the flue gas. Flue gas may escape into the room.

- ▶ After installation, remove all mortar residues, shavings, etc. from the flue pipe.

Extensions that are not secured to the wall or ceiling may bend and separate due to thermal expansion.

- ▶ Secure each extension to the wall or ceiling using a pipe clamp.
- ▶ Where possible, use the original pipe clamps from the product range.
 - If you are using standard pipe clamps, the tensioning range must be between 130 mm, 160 mm and 200 mm, and the bearing capacity must be at least 200 kg.
 - The distance between two pipe clamps must not be greater than the length of the extension.
 - The pipe clamps must be isolated from structure-borne sound.

The flue gas pipe expands when warm. If the pipes are obstructed when expanding, this may lead to a forced fracture and flue gases will escape.

- ▶ Secure each of the pipe clamps to the wall or the ceiling using a hanger bolt or threaded bolt M8/M10. This allows for sufficient elasticity of the fastening in the event of thermal expansion of the pipes.
- ▶ Secure the pipe clamps using hanger bolts or stud bolts.

Loads on the flue gas guiding may damage the flue gas pipe and lead to flue gas escaping.

- ▶ Do not secure any loads to the flue gas guiding.

Mechanical impact loading of the flue gas pipe may damage the flue gas pipe. Flue gases may escape.

- ▶ Do not install the flue gas pipe in areas with mechanical impact loading. The flue gas pipe can also be protected against impact using protection devices that are created on-site.

Standing condensate can damage the seals of the flue gas pipe.

- ▶ Route the horizontal flue pipe with a downward gradient.

- Downward gradient to the product: 3°



Note

3° corresponds to a downward gradient of approx. 50 mm per metre of pipe length.

2.3.4 Risk of death from flue gas escaping from openings in the flue pipe

All openings in the flue pipe that can be opened for inspection purposes must be closed before start-up and during operation.

- ▶ The openings of the flue pipe must only be opened by a competent person.

2.3.5 Risk of fire and electronic damage caused by missing lightning protection for the flue gas installation

The product may be damaged by the effects of lightning and this may lead to fires.

- ▶ If the building is equipped with a lightning protection system, incorporate the air/flue gas pipe into the lightning protection.
- ▶ If the vertical flue gas pipe contains materials made from metal, incorporate it into the potential balancing system.

2.3.6 Risk of injury from snow falling from roofs

Where flue pipes penetrate the roof skin, the water vapour contained in flue gas may precipitate as ice on the roof or the roof structures in unfavourable weather conditions.

- ▶ At the installation site, ensure that this ice build-up does not slide from the roof.
- ▶ If necessary, install an ice collection mesh.

2.3.7 Risk of suffocation from lack of rear ventilation

The flue gas pipe is not ventilated from behind.

If the installation room for the product is not ventilated, there is a risk of suffocation.

- ▶ In the installation room, build a ventilation opening that leads outside.
 - Cross-sectional area: 150 cm²

2.3.8 Risk of corrosion in the flue gas installation

Sprays, solvents, cleaning agents, paints and adhesives may contain substances that could lead to corrosion in the flue gas installation in some circumstances when the product is in operation.

- ▶ Ensure that the combustion air that is guided to the product is kept free of chemical substances that may contain fluorine, chlorine, or sulphur, for example.
- ▶ Only use appropriate Vaillant components for installing the flue gas guiding.



2.3.9 Inspect/clean chimneys to which former solid fuel boilers were once connected

We recommend that you have chimneys inspected and cleaned by a chimney sweep before the flue gas pipe is installed if these chimneys were previously used to divert flue gas away from solid-fuel-fired boilers but should now supply combustion air. If it is not possible to adequately inspect/clean the chimney (e. g. due to construction features), you can

- use a separate air supply or
- use open-flued operation for the system.

2.3.10 Risk of corrosion in the product caused by using a chimney to which the former oil-fired boiler was once connected

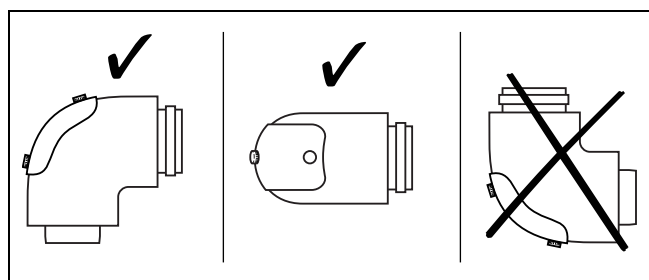
Chimneys that previously diverted the flue gas away from oil-fired boilers should not be used to supply combustion air.

The combustion air may be charged with chemical deposits and this leads to corrosion in the product.

2.3.11 Risk of fire due to insufficient clearance

- Ensure that the flue gas pipe outside the shaft has a minimum clearance of 5 cm from flammable components.

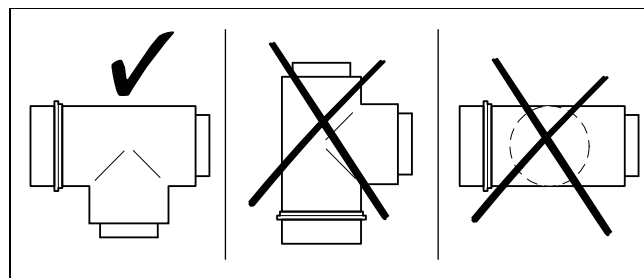
2.3.12 Moisture damage caused by incorrect installation location of the inspection elbow



An incorrect installation location leads to condensate leaking from the lid of the opening for cleaning and may lead to corrosion damage.

- Install the inspection elbow in accordance with the illustration.

2.3.13 Moisture damage caused by incorrect installation location of the inspection T-piece



An incorrect installation location leads to condensate leaking from the lid of the opening for cleaning and may lead to corrosion damage.

- Install the inspection T-piece in accordance with the illustration.

2.3.14 Material damage due to improper use and/or unsuitable tools

Improper use and/or the use of unsuitable tools may result in material damage.

- Always use a suitable open-end spanner to tighten or undo threaded connections.
- Do not use pipe wrenches, extensions, etc.

2.4 Intended use

2.4.1 Intended use of the Vaillant air/flue gas systems

Vaillant air/flue gas systems are constructed using state-of-the-art technology in accordance with the recognised safety rules and regulations. Nevertheless, there is still a risk of injury or death to the system operator or others or of damage to the products and other property in the event of improper use or use for which the products are not intended.

The Vaillant air/flue gas systems named in this manual must only be used in combination with the product types named in this manual.

Any other use that is not specified in these instructions, or use beyond that specified in this document, shall be considered improper use.

Intended use includes the following:

- observance of accompanying operating, installation and servicing instructions for the Vaillant product as well as for all other components of the system
- installing and fitting the product in accordance with the product and system approval
- compliance with all inspection and maintenance conditions listed in the instructions.

2.4.2 CE certification

The products are certified as boiler systems with attached flue gas installation according to the EU gas appliances directive 90/396/EEC or 2009/142/EC.



2 Safety

This installation manual is a component of the certification and is cited in the type testing certificate. In compliance with the regulatory statutes of this installation manual, the proof of usability of the products identified by Vaillant article numbers that are designed for the flue pipe is provided. If you do not use certified elements for the Vaillant flue pipe when installing the products, this voids the CE conformity of the product. We therefore strongly recommend that you fit Vaillant air/flue gas systems.

2.5 Regulations (directives, laws, standards)

Please observe the existing national rules and regulations, standards, laws and guidelines.



3 System overview

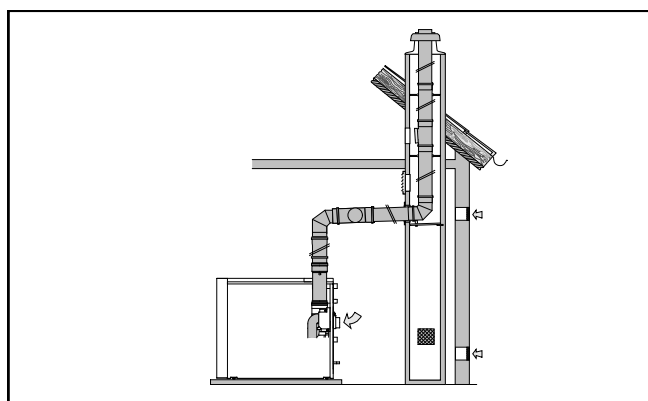
Observe the maximum pipe lengths, see "Maximum pipe lengths" (→ Page 12).

3.1 Combination options for systems with VKK

130 mm diameter	160 mm diameter	200 mm diameter
VKK 806/3-E-HL	VKK 806/3-E-HL	VKK 2006/3-E-HL
VKK 1206/3-E-HL	VKK 1206/3-E-HL	VKK 2406/3-E-HL
VKK 1606/3-E-HL	VKK 1606/3-E-HL	VKK 2806/3-E-HL

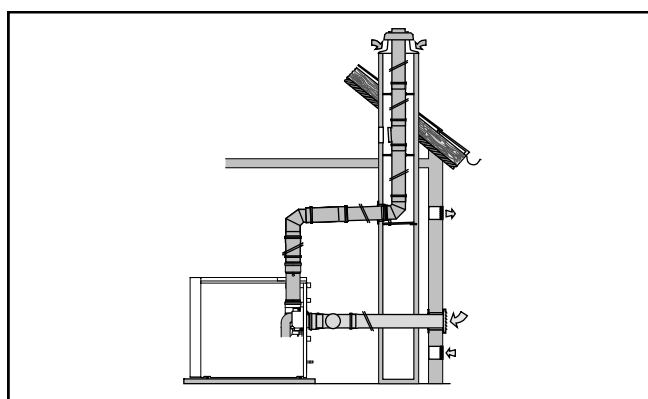
3.2 130 mm diameter system

3.2.1 Flue gas pipe in the shaft, combustion air from the installation room



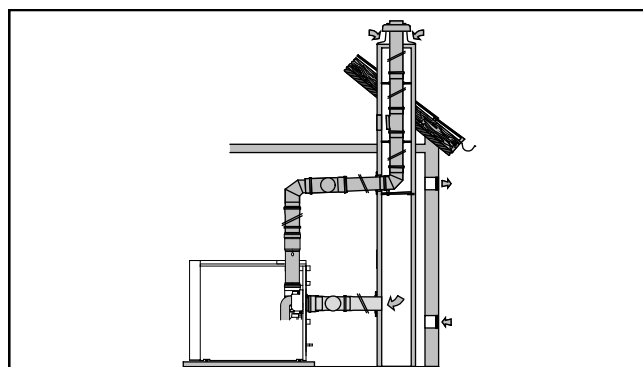
- Installing the 130 mm diameter system (→ Page 18)

3.2.2 Flue gas pipe in the shaft, combustion air through the external wall



- Installing the 130 mm diameter system (→ Page 18)

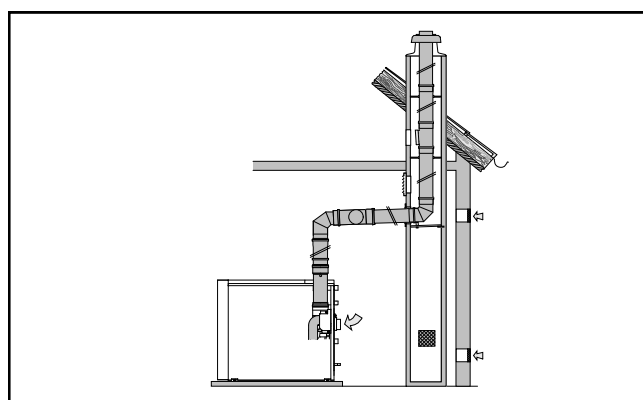
3.2.3 Flue gas pipe in the shaft, combustion air from the shaft



- Installing the 130 mm diameter system (→ Page 18)

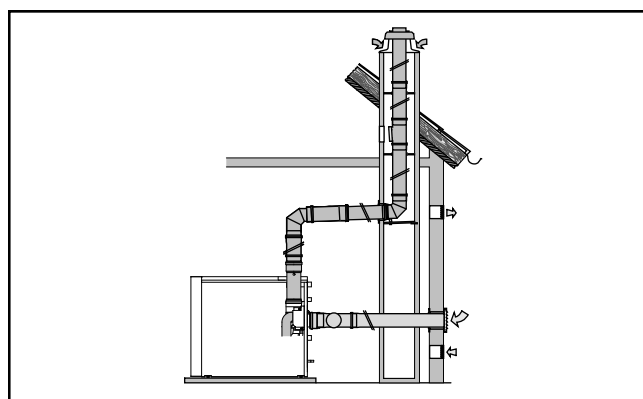
3.3 160 mm diameter, 200 mm diameter system

3.3.1 Flue gas pipe in the shaft, combustion air from the installation room



- Installing the flue gas pipe in the shaft (→ Page 22)
- Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

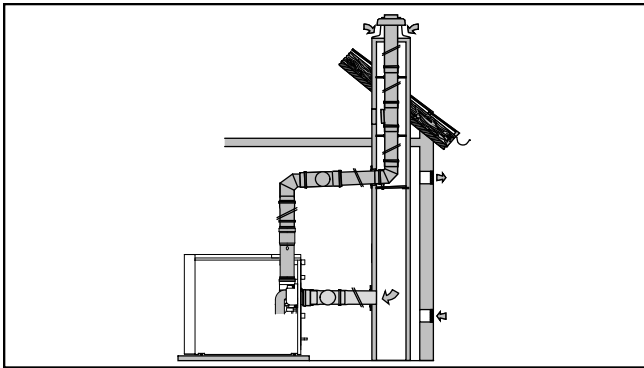
3.3.2 Flue gas pipe in the shaft, combustion air through the external wall



- Installing the flue gas pipe in the shaft (→ Page 22)
- Installing the combustion air line in the external wall (→ Page 31)
- Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

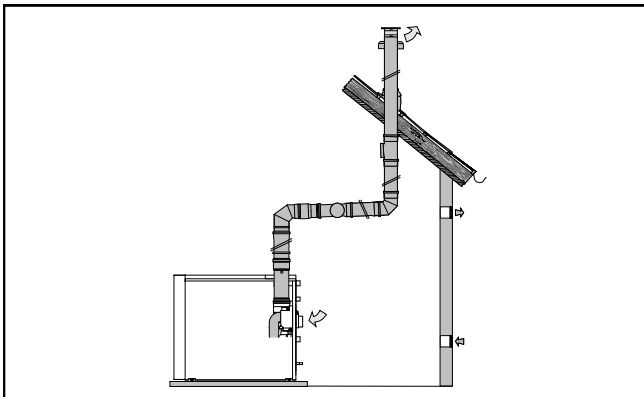
3 System overview

3.3.3 Flue gas pipe in the shaft, combustion air from the shaft



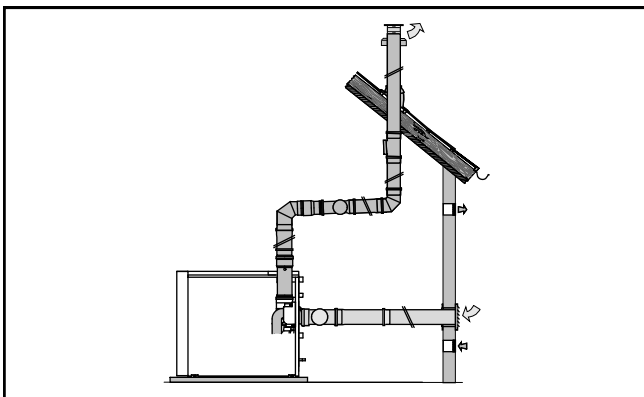
- ▶ Installing the flue gas pipe in the shaft (→ Page 22)
- ▶ Installing the combustion air line in the shaft (→ Page 31)
- ▶ Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

3.3.4 Flue gas pipe through the roof, combustion air from the installation room



- ▶ Installing the roof duct (→ Page 26)
- ▶ Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

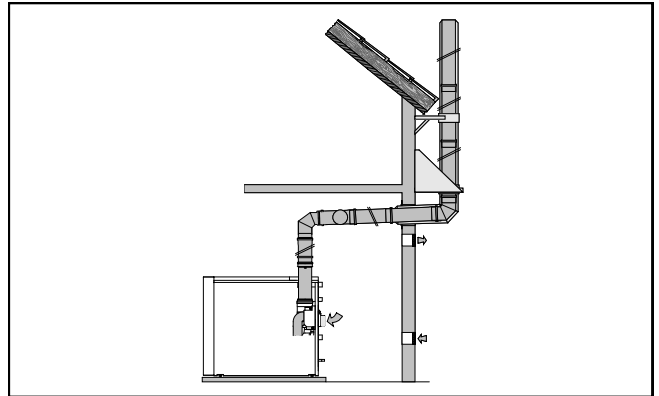
3.3.5 Flue gas pipe through the roof, combustion air through the external wall



- ▶ Installing the roof duct (→ Page 26)
- ▶ Installing the combustion air line in the external wall (→ Page 31)

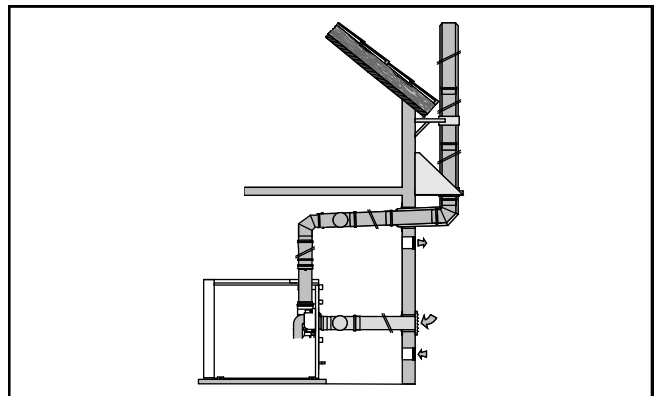
- ▶ Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

3.3.6 Flue gas pipe on the external wall, combustion air from the installation room



1. Installing the flue gas pipe on the external wall (→ Page 26)
2. Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

3.3.7 Flue gas pipe on the external wall, combustion air through the external wall



- ▶ Installing the flue gas pipe on the external wall (→ Page 26)
- ▶ Installing the combustion air line in the external wall (→ Page 31)
- ▶ Flue gas connection and installing the horizontal flue gas pipe (→ Page 31)

4 Certified air/flue gas systems and components

4.1 Certified air/flue gas systems and components, 130 mm diameter

Components	Art. no.
Basic set for shaft installation (PP), 130 mm diameter	0020042762
Spacer (PP), 7 pcs, 130 mm diameter	0020042763
Inspection opening with cover (PP), 130 mm diameter	0020042764
87° elbow (PP), 130 mm diameter	0020042765
45° elbow (PP), 130 mm diameter	0020042766
30° elbow (PP), 130 mm diameter	0020042767
15° elbow (PP), 2 pcs, 130 mm diameter	0020042768
Extension (PP), 1.0 m, 130 mm diameter	0020042769
Extension (PP), 2.0 m, 130 mm diameter	0020042770
Extension (PP), 0.5 m, 150 mm diameter	0020095543
Basic set for air intake, 130 mm diameter	0020060591

4.2 Certified air/flue gas systems and components, 160 mm diameter

Components	Art. no.
Unit connection (PP) with measurement opening, 150 – 160 mm diameter	0020095531
Basic set for shaft installation (PP), 160 mm diameter	0020095533
Set for air intake (PP), 160 mm diameter	0020095535
End pipe (stainless steel), 0.5 m, 160 mm diameter	0020095537
Installation aid with a line loop, 160 mm diameter	0020095541
Extension (PP), 0.5 m, 160 mm diameter	0020095545
Extension (PP), 1.0 m, 160 mm diameter	0020095546
Extension (PP), 2.0 m, 160 mm diameter	0020095547
87° elbow (PP), 160 mm diameter	0020095552
87° elbow (PP) with inspection opening, 160 mm diameter	0020095554
45° elbow (PP), 160 mm diameter	0020095556
30° elbow (PP), 160 mm diameter	0020095558
15° elbow (PP), 160 mm diameter	0020095560
Inspection element (PP) 0.21 m, 160 mm diameter	0020095561
Spacer (1 pc), 160 mm diameter	0020095563
Spacer (4 pcs), 160 mm diameter	0020095565
Vertical roof duct (PP), concentric, 160/186 mm diameter	0020095567
Universal pitched roof tile (25° - 45°), black, for roof duct, 160/186 mm diameter	0020095568
Universal pitched roof tile (25° - 45°), red, for roof duct, 160/186 mm diameter	0020095569

Components	Art. no.
Flat roof penetration collar (aluminium), for the roof duct, 160/186 mm diameter	0020095570
External wall connection (stainless steel), elbow, support console, external collar, 160/225 mm diameter	0020095573
External wall pipe bracket (stainless steel), 225 mm diameter	0020095575
Extension (stainless steel) for external wall laying, 0.5 m, concentric, 160/225 mm diameter	0020095577
Extension (stainless steel) for external wall laying, 1.0 m, concentric 160/225 mm diameter	0020095579
Vertical roof duct (stainless steel) for external wall laying, concentric, 160/225 mm diameter	0020095581
Opening piece (stainless steel), 160/225 mm diameter	0020095583
Tile for pitched roof for 160/225 mm diameter system, dependent on the angle 15° - 25° 25° - 35° 35° - 45°	0020095585 0020130600 0020130601
Flat roof penetration collar (stainless steel) for 160/225 mm diameter system, stainless steel	0020095587
Inspection element (stainless steel), 0.4 m, 160/225 mm diameter	0020095589
Support elbow mounting rail, long version, 500 mm	0020095539
Air clamp (stainless steel) for 160/225 mm diameter	0020095540
45° elbow (stainless steel) for external wall laying, concentric, 160/225 mm diameter	0020095544
Fastening clamp, 160 mm diameter	0020151162

4.3 Certified air/flue gas systems and components, 200 mm diameter

Components	Art. no.
Unit connection (PP) with measurement opening, 200 mm diameter	0020095532
Basic set for shaft installation (PP), 200 mm diameter	0020095534
End pipe (stainless steel), 0.5 m, 200 mm diameter	0020095538
Installation aid with line loop, 200 mm diameter	0020095542
Extension (PP), 0.5 m, 200 mm diameter	0020095549
Extension (PP), 1.0 m, 200 mm diameter	0020095550
Extension (PP), 2.0 m, 200 mm diameter	0020095551
87° elbow (PP), 200 mm diameter	0020095553
87° elbow (PP) with inspection opening, 200 mm diameter	0020095555
45° elbow (PP), 200 mm diameter	0020095557
30° elbow (PP), 200 mm diameter	0020095559
Inspection element (PP), 0.5 m, 200 mm diameter	0020095562

5 System conditions

Components	Art. no.
Spacer (stainless steel), 1 pc, 200 mm diameter Note: The spacer is bent in its film packaging. In the as-delivered condition, the struts are straight. The spacers must be put back into their round shape before the installation.	0020095564
Spacer (stainless steel), 4 pcs, 200 mm diameter	0020095566
Spacer (stainless steel), 10 pcs, 200 mm diameter	0020106436
External wall connection (stainless steel), 200/300 mm diameter, elbow, support console, external collar	0020095574
External wall pipe bracket (stainless steel), 300 mm diameter	0020095576
Extension (stainless steel) for external wall laying, 0.5 m, concentric, 200/300 mm diameter	0020095578
Extension (stainless steel) for external wall laying, 1.0 m, concentric, 200/300 mm diameter	0020095580
Vertical roof duct (stainless steel) for external wall laying, concentric, 200/300 mm diameter	0020095582
Opening piece (stainless steel), 200/300 mm diameter	0020095584
Tile for pitched roof for 200/300 mm diameter system, dependent on the angle: 15° - 25° 25° - 35° 35° - 45°	0020095586 0020130602 0020130603
Flat roof penetration collar (stainless steel) for 200/300 mm diameter system	0020095588
Inspection element (stainless steel) 0.66 m, 200/300 mm diameter	0020095590
Support elbow mounting rail, long version, 500 mm	0020095539
Air clamp (stainless steel) for 200/300 mm diameter	0020095536
45° elbow (stainless steel) for external wall laying, concentric, 200/300 mm diameter	0020095548
Fastening clamp, 200 mm diameter	0020151163

4.4 Certified flue gas systems

The certification also documents that the flue gas systems are suitable for use with the product in accordance with the instructions that are valid up to 08/2012.

5 System conditions

5.1 Maximum pipe lengths

5.1.1 Notes on the illustrations and the tables

Total pipe length $L = L_1 + L_2 + \dots + L_3 + \dots + L_4$ (of which max. 10.0 m is in the cold area, exterior external wall system).

When installing diversions in addition to those specified in the tables, the maximum total pipe length L is reduced as follows:

- by 1 m for each 87° diversion in the flue gas line and air pipe
- by 0.5 m for each 45° diversion in the flue gas line and air pipe

Pipe diameter for air supply through the shaft or external wall:

- Diameter of the 130 mm flue gas pipe: Minimum diameter of the 130 m supply line
- Diameter of the 160 mm or 200 mm flue gas pipe: Minimum diameter of the 160 m supply line.

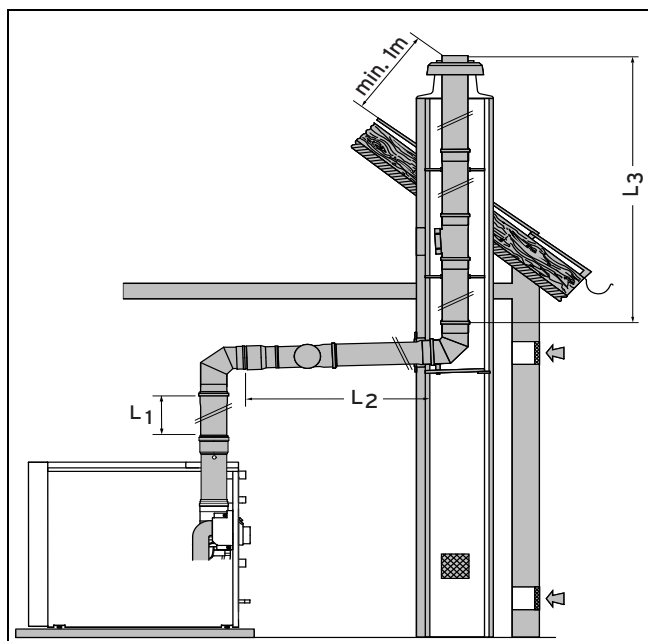
Maximum vertical height in the shaft if flue gas pipe is 130 mm in diameter: 30 m

Maximum shaft cross-section for 130 mm diameter flue gas pipe in the shaft:

- Angular: 230 x 230 mm
- Round: 280 mm

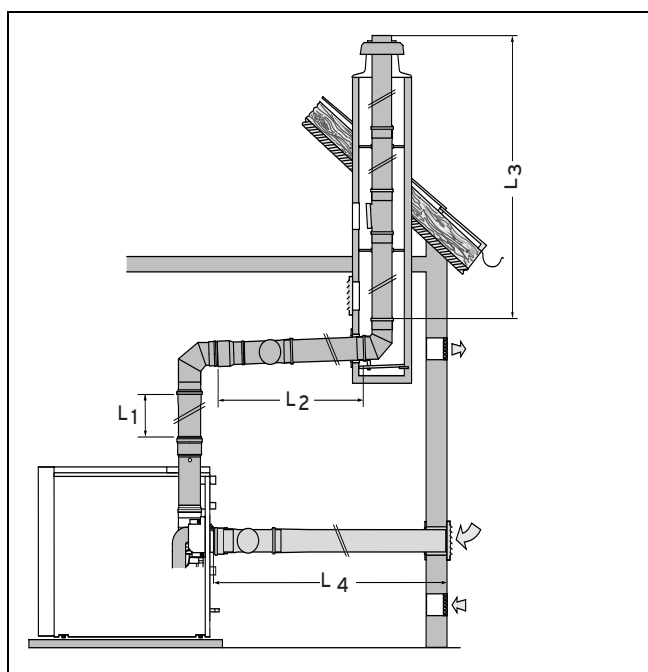
For the combustion air guiding through the external wall, the air intake port must not be in any wind pressure area other than the flue gas opening.

5.1.2 Flue gas pipe in the shaft, combustion air from the installation room



		ecoCRAFT VKK../3-E-HL					
		806	1206	1606	2006	2406	2806
System	Shaft cross-section: At least	Maximum total pipe length (L1 + L2 + L3)					
130 mm diameter	Round: DN + 60 mm Angular: DN + 40 mm	33.0 m plus 3 x 87° diversions and support elbow			—		
160 mm diameter		50.0 m plus 3 x 87° diversions and support elbow			—		
200 mm diameter		—			50.0 m plus 3 x 87° diversions and support elbows		
		The horizontal flue gas pipe must have a maximum length of 6 m, minus the three 87° diversions.					

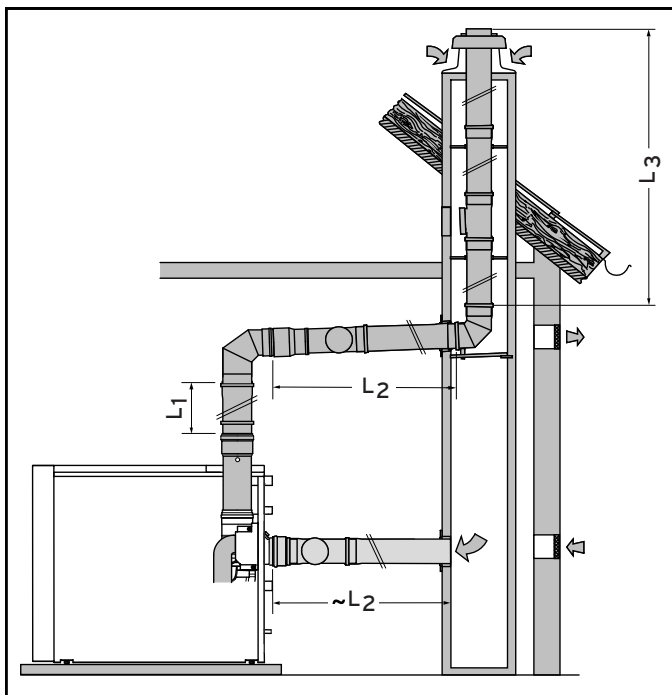
5.1.3 Flue gas pipe in the shaft, combustion air through the external wall



5 System conditions

		ecoCRAFT VKK../3-E-HL					
		806	1206	1606	2006	2406	2806
System	Shaft cross-section: At least	Maximum total pipe length (L1 + L2 + L3 + L4)					
130 mm diameter	Round: DN + 60 mm Angular: DN + 40 mm	40.0 m plus 1 x diversion 87° and support elbow		38.0 m plus 1 x diversion 87° and support elbow	—		
160 mm diameter		50.0 m plus 1 x diversion 87° and support elbow			—		
200 mm diameter		—			50.0 m plus 1 x diversion 87° and support elbow		
		The horizontal lines must have a maximum length of 12 m, minus the two 87° diversions, of which 6 m is for the air pipe and max. 6 m is for the flue gas pipe.					

5.1.4 Flue gas pipe in the shaft, combustion air from the shaft

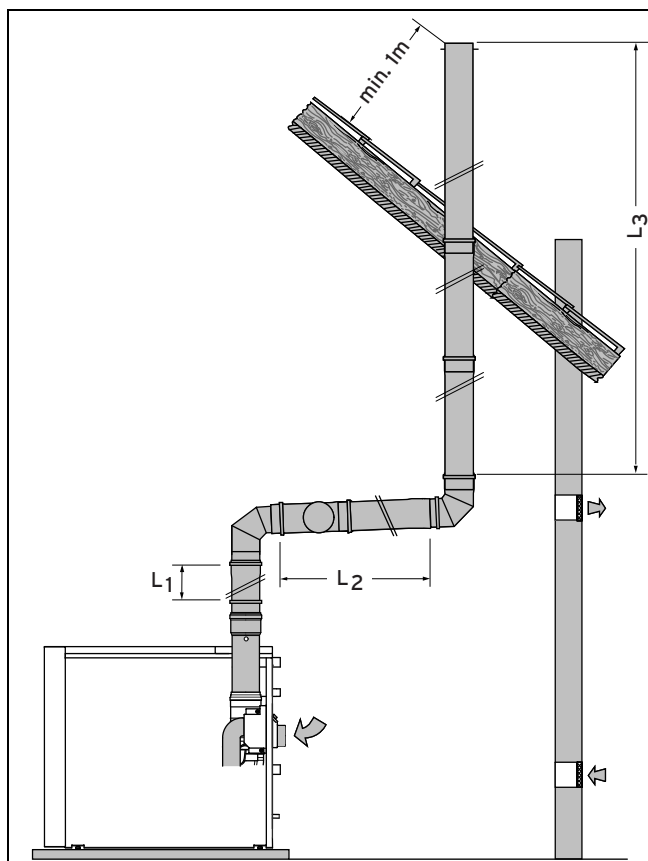


		ecoCRAFT VKK../3-E-HL					
		806	1206	1606	2006	2406	2806
System	Shaft cross-section: At least	Maximum total pipe length (L1 + L2 + L3)					
130 mm diameter	Round: DN + 60 mm Angular: DN + 40 mm	35.0 m	27.0 m	17.0 m	—		
	Round: DN + 80 mm Angular: DN + 60 mm		35.0 m	30.0 m			
	Round: DN + 100 mm Angular: DN + 80 mm			35.0 m			

		ecoCRAFT VKK../3-E-HL					
		806	1206	1606	2006	2406	2806
System	Shaft cross-section: At least	Maximum total pipe length (L1 + L2 + L3)					
130 mm diameter	Round: DN + 120 mm Angular: DN + 100 mm	35.0 m	35.0 m	35.0 m	–		
160 mm diameter	Round: DN + 70 mm Angular: DN + 40 mm	50 m	50 m	39.8 m	–		
	Round: DN + 90 mm Angular: DN + 60 mm			50 m			
	Round: DN + 120 mm Angular: DN + 80 mm						
	Round: DN + 140 mm Angular: DN + 100 mm						
200 mm diameter	Round: DN + 70 mm Angular: DN + 40 mm	–			50 m	38.6 m	26,3
	Round: DN + 90 mm Angular: DN + 60 mm					50 m	50 m
	Round: DN + 120 mm Angular: DN + 80 mm						
	Round: DN + 140 mm Angular: DN + 100 mm						
		– plus 1 x diversion 87° and support elbow – The horizontal lines must have a maximum length of 12 m, minus the 87° diversion, of which max. 6 m is for the air pipe and max. 6 m is for the flue gas pipe.					

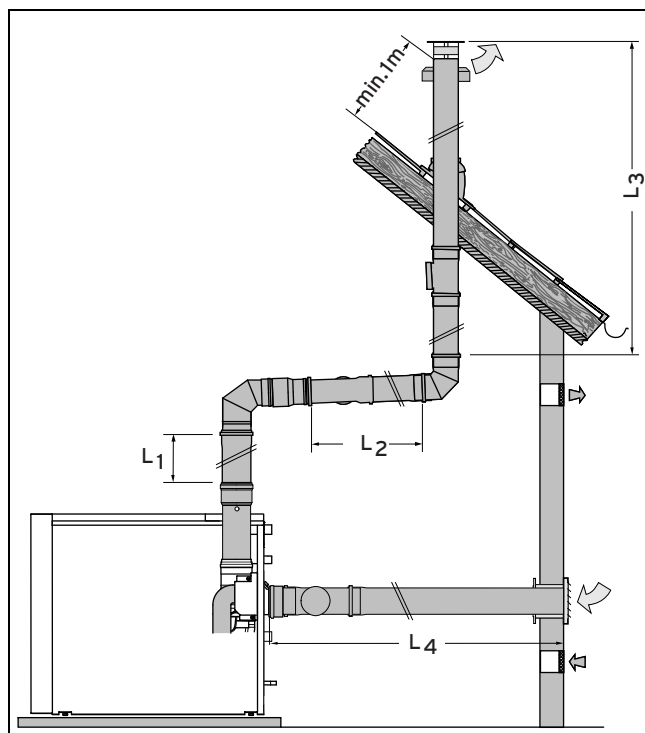
5 System conditions

5.1.5 Flue gas pipe through the roof, combustion air from the installation room



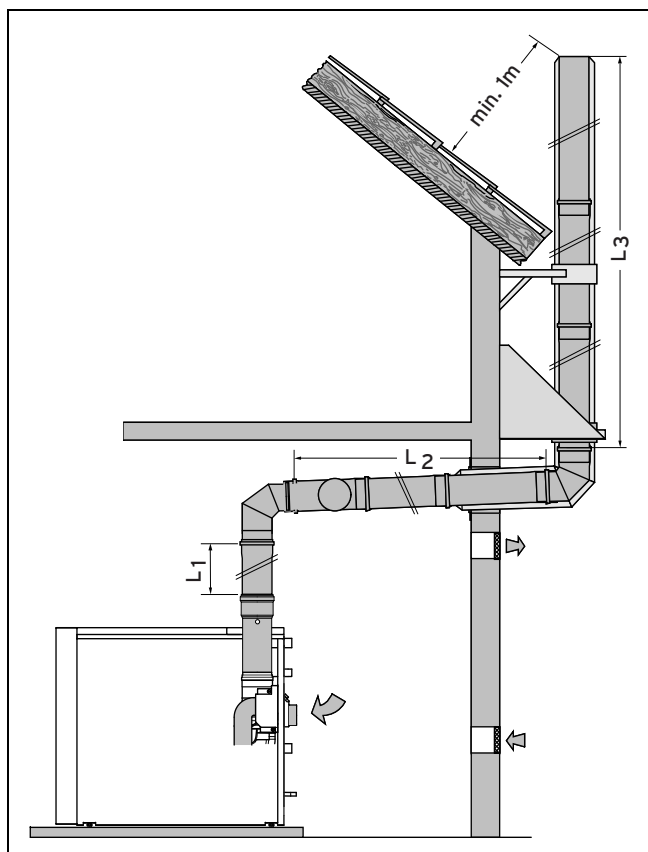
	ecoCRAFT VKK../3-E-HL					
	806	1206	1606	2006	2406	2806
System	Maximum total pipe length (L1 + L2 + L3)					
130 mm diameter	—					
160 mm diameter	25.0 m plus 3 diversions 87°			—		
200 mm diameter	—			25.0 m plus 3 diversions 87°		
	The horizontal flue gas pipe must have a maximum length of 6 m, minus the three 87° diversions.					

5.1.6 Flue gas pipe through the roof, combustion air through the external wall



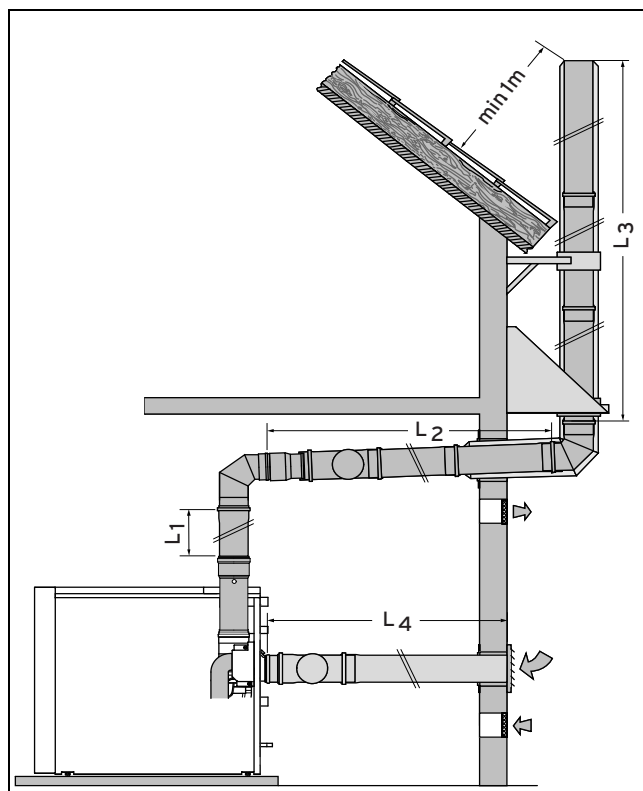
	ecoCRAFT VKK../3-E-HL					
	806	1206	1606	2006	2406	2806
System	Maximum total pipe length (L1 + L2 + L3+ L4)					
130 mm diameter	—					
160 mm diameter	25.0 m plus 2 diversions 87°			—		
200 mm diameter	—			25.0 m plus 2 diversions 87°		
	The horizontal lines must have a maximum length of 12 m, minus the two 87° diversions, of which 6 m is for the air pipe and max. 6 m is for the flue gas pipe.					

5.1.7 Flue gas pipe on the external wall, combustion air from the installation room



	ecoCRAFT VKK../3-E-HL					
	806	1206	1606	2006	2406	2806
System	Maximum total pipe length (L1 + L2 + L3)					
130 mm diameter	—					
160 mm diameter	50.0 m plus 1 x diversion 87° plus support elbow			—		
200 mm diameter	—			50.0 m plus 1 x diversion 87° plus support elbow		
	The horizontal flue gas pipe must have a maximum length of 10 m, minus the 87° diversion.					

5.1.8 Flue gas pipe on the external wall, combustion air through the external wall



	ecoCRAFT VKK../3-E-HL					
	806	1206	1606	2006	2406	2806
System	Maximum total pipe length (L1 + L2 + L3 + L4)					
130 mm diameter	—					
160 mm diameter	50.0 m plus 1 x diversion 87° plus support elbow			—		
200 mm diameter	—			50.0 m plus 1 x diversion 87° plus support elbow		
	The horizontal lines must have a maximum length of 20 m, minus the 87° diversion, of which max. 10 m is for the air pipe and max. 10 m is for the flue gas pipe.					

5.2 General installation instructions

5.2.1 Technical properties of the air/flue gas systems from Vaillant for calorific value products

The air/flue gas systems from Vaillant demonstrate the following performance features:

Technical feature	Description
Temperature resistance	Adapted to the maximum flue gas temperature of the product.

6 Installing the 130 mm diameter system

Technical feature	Description
Leaks	Adapted to the product for use in buildings and outdoors
Condensate resistance	For gas and oil fuels
Corrosion resistance	Adapted to the gas and oil condensing boiler
Clearance from combustible materials	Not necessary
Installation location	In accordance with the installation instructions
Resistance to fire	Normal level of flame resistance (in accordance with EN 13501-1 Class E)
Fire resistance time	None: The external pipes of the concentric system are not flammable. A required fire resistance time is provided by shafts within the building.

5.2.2 Requirements for the shaft for the flue pipe

Flue pipes from Vaillant do not have any fire resistance (direction of operation from the outside to the inside).

If the flue pipe is guided through parts of a building that require a level of fire resistance, a shaft must be fitted. The shaft must ensure the fire resistance (direction of operation from the outside to the inside) that is required for the building parts through which the flue gas installation is guided. The required fire resistance must demonstrate a suitable classification (brick partition and heat insulation) and be sufficient for the building's requirements.

Observe the national ordinances, regulations and standards.

An existing chimney that was used for the flue gas guiding usually meets these requirements and can be used as a shaft for the flue pipe.

The gas tightness of the shaft must comply with the test pressure class N2 in accordance with EN 1443. An existing chimney that was used for the flue gas guiding usually meets these requirements and can be used as a shaft for the air guiding.

If the shaft is used to supply combustion air, this must be designed and, in particular, insulated in such a way that no moisture (caused by the cooling of the shaft by cold combustion air penetrating from the outside) can penetrate the exterior of the shaft. An existing chimney that was used for the flue gas guiding usually meets these requirements and can be used as a shaft for the supply of combustion air without the need for additional heat insulation.

5.2.3 Route of the flue pipe in buildings

The route of the flue pipe should correspond to the shortest and the most direct distance between the product and the flue gas installation opening, and it should run as straight as possible.

- Do not arrange several diversions immediately after each other.

As a result of standards relating to the hygiene of drinking water, water pipes must be protected against impermissible heating.

- Lay the flue pipe separately from the drinking water pipes.

It must be possible to check and, if required, clean the entire length of the flue gas route.

It must be possible to remove the flue pipe again with a minimal amount of effort (no time-consuming mortising work in the living area, but screwed-in cladding instead). If they are arranged in shafts, they are usually easy to remove.

5.2.4 Location of the opening

The location of the flue gas installation opening must comply with the relevant applicable international, national and/or local regulations.

- Align the opening of the flue gas installation in such a way that ensures a secure outward flow and distribution of the flue gases and prevents these gases from re-entering the building through openings (windows, air intake openings and balconies).

5.2.5 Disposing of condensate

Local regulations may stipulate the minimum quality of any condensate that may enter the public waste-water system. If required, a condensate neutraliser must be used.

- When disposing of the condensate into the public waste-water system, observe the local regulations.
- Only use corrosion-resistant piping material for removing condensate.

6 Installing the 130 mm diameter system

To install the 130 mm diameter shaft system, the flue gas pipe is installed in the shaft first. The flue gas connection and the horizontal flue gas pipe are then installed and, finally, the combustion air line is installed.

6.1 Installation instructions

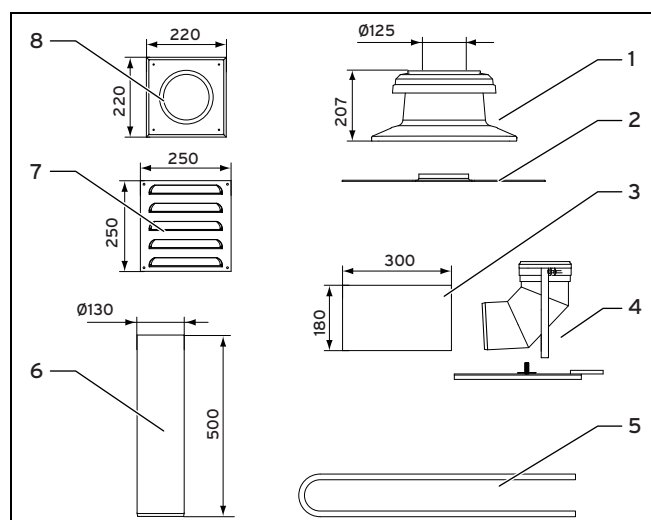
- For inspection purposes, install at least one inspection T-piece in the flue gas pipe in the boiler installation room.
- You must not immerse the flue pipe.
- Use the safety pipe contained in the scope of delivery for the shaft opening.

The shaft dimensions for installing the basic set must be at least:

- 170 mm x 170 mm
- 190 mm diameter

6.2 Installing the basic set for shaft installation

6.2.1 Basic set for the shaft installation, article number 0020042762

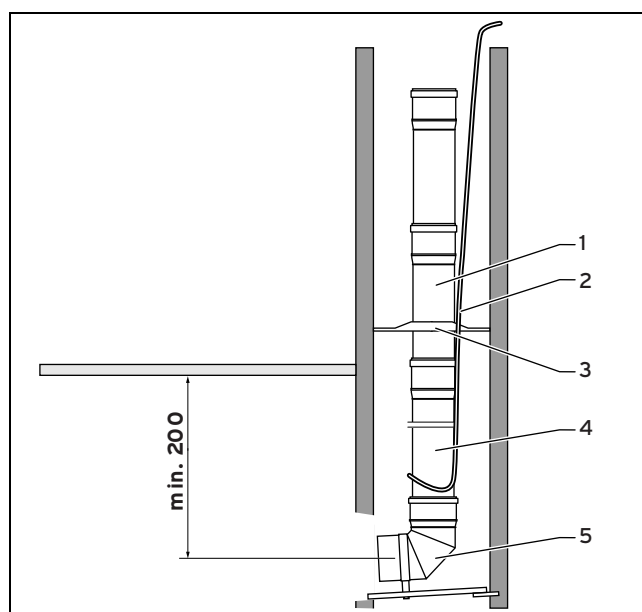


- | | |
|----------------------------------------------------------|--------------------------------------------------------|
| 1 Shaft cover for PP, 130 mm (1 pc) | 5 Sealing tape |
| 2 Spacer for PP, 130 mm (7 pcs) | 6 Flue pipe, aluminium (no sleeve), 500 mm long (1 pc) |
| 3 Safety pipe for shaft opening, DN 180, 300 mm (1 pc) | 7 Ventilation grille (1 pc) |
| 4 Support elbow (PP) 130, 87° incl. mounting rail (1 pc) | 8 Wall collar for PP 130 (1 pc) |

6.2.2 Preparing the installation

- Determine the installation site of the flue gas guiding in the shaft.
- Drill a sufficiently large opening to allow enough space for installation.
- Drill a hole in the rear side of the shaft.
 - Diameter: 10 mm

6.2.3 Installing the support elbow and inserting the flue pipes in the shaft



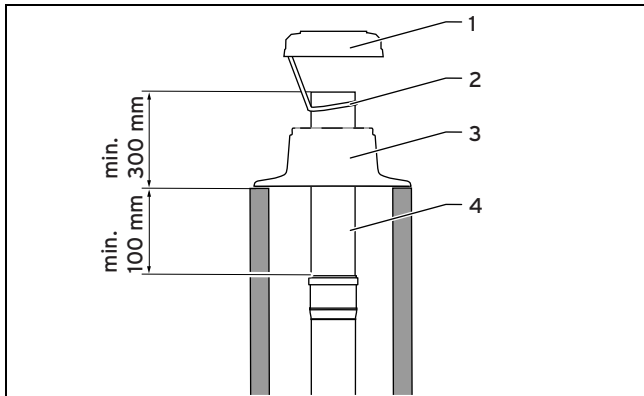
- Mortise a sufficiently large opening at the installation site to allow enough space for installation.
- Insert the support elbow with the mounting rail (5) so that the flue pipe is positioned in the centre of the shaft.
- Slide the spacer (3) onto the flue pipe.
 - Distance between the spacers: ≤ 2 m
- Use a line (2) to lower the first flue pipe (4) down far enough until you can insert the next flue pipe (1).
 - The sleeve side of the flue pipe must always point upwards.
- Continue joining the pipes together until you can insert the lowest pipe into the support elbow.
- If the flue gas pipe cannot be inspected from the shaft opening, install an inspection T-piece in a suitable position (article number 0020042764).

Conditions: Diversions required in the shaft

- Install a 15° or 30° elbow (article number 0020042768 and 0020042767).
- After every diversion, install an inspection T-piece as close as possible to the diversion.

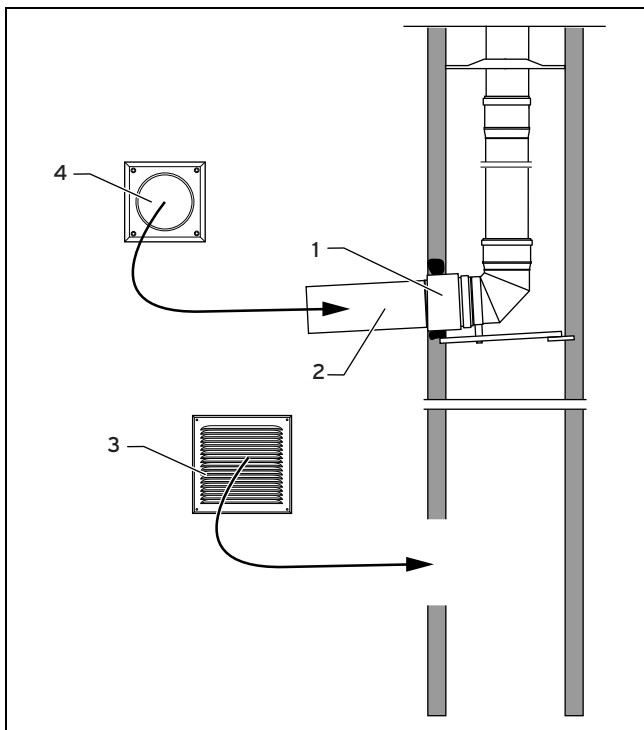
6 Installing the 130 mm diameter system

6.2.4 Installing the shaft extension



1. Install the 130 mm diameter aluminium flue pipe (4) that is included in the scope of delivery.
2. Remove the line from the shaft.
3. Slide the shaft extension (3) over the aluminium pipe (4) and secure it to the shaft side using rawl plugs and bolts.
4. Secure the top cover with rear ventilation (1) to the aluminium pipe using the safety line (2) that is included.
5. Lock the top cover into the shaft extension (3).

6.2.5 Installing the shaft connection



1. Insert the 500 mm flue pipe (2) into the support elbow.
2. Shorten the DN 180 safety pipe for the shaft opening (1) to the shaft wall thickness.
3. Push the safety pipe over the flue pipe in the shaft until it ends flush with the shaft's external wall.
4. Secure the safety pipe with mortar and leave it to harden.

5. Fit the wall collar (4) that is contained within the scope of delivery over the flue pipe. Only secure the wall collar to the shaft after completing the installation work.
6. Create an opening at the foot of the shaft for rear ventilation of the shaft.

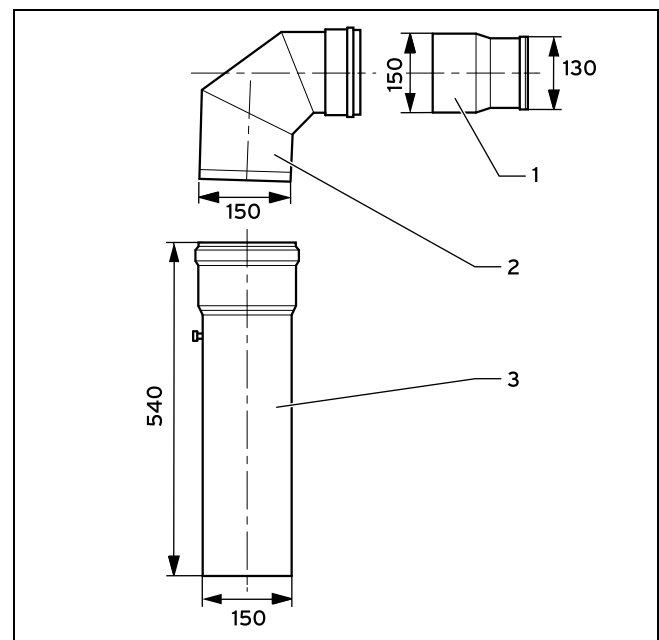
Conditions: Rear ventilation of the shaft required

– Dimensions: 150 x 150 mm

7. Secure the ventilation grille (3).
8. Secure the pipe wall collar.

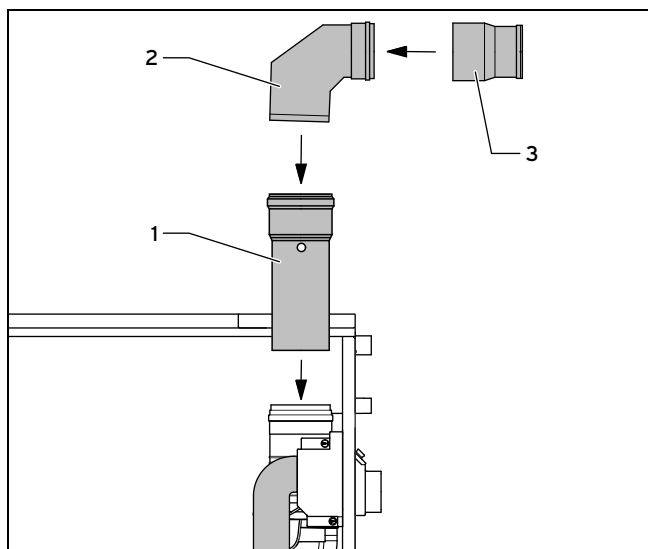
6.3 Flue gas connection and installing the horizontal flue gas pipe

6.3.1 Scope of delivery article number 0020060589



- 1 Transition piece, 130 mm diameter
- 2 Elbow 87°
- 3 Extension with measurement opening

6.3.2 Install the flue gas connection on the boiler



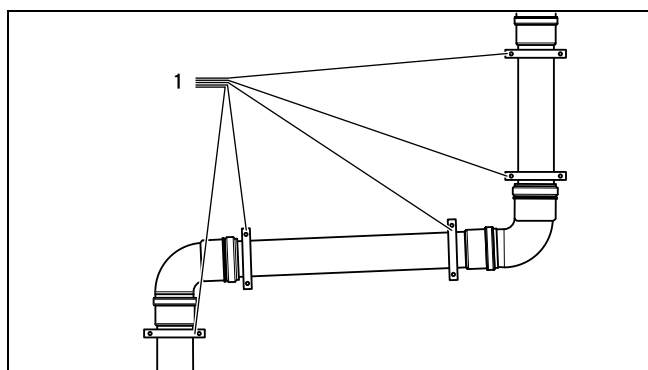
1. Insert the extension with measurement opening (1) into the product's condensate trap.
2. Insert the 87° elbow (2) into the extension.
3. Insert the transition piece at 130 mm (3) into the 87° elbow.
 - Always incorporate the diameter reduction from 150 to 130 mm in the horizontal flue gas pipe.

6.3.3 Installing the horizontal flue gas pipe

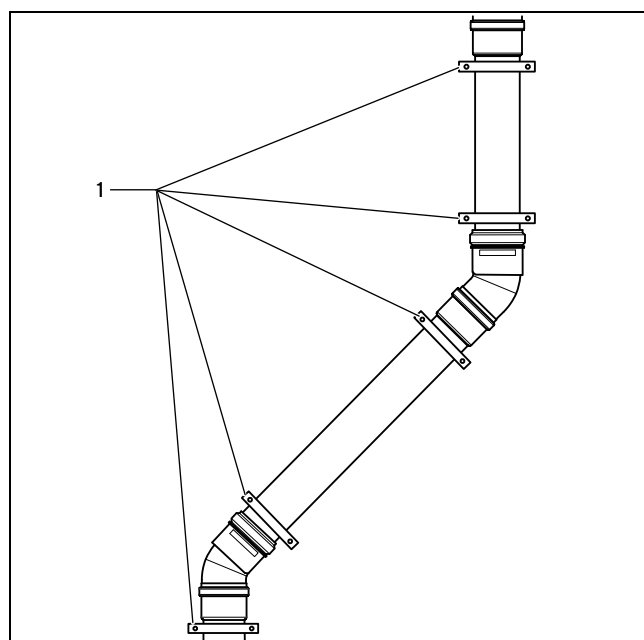
1. Connect the vertical part of the flue gas pipe and the equipment connection piece using the required extension pipes, diversions and inspection T-pieces.
2. If necessary, use a saw to shorten the extensions.

6.3.4 Installing the fastening clamps

1. Attach one fastening clamp for each extension right next to the sleeve.



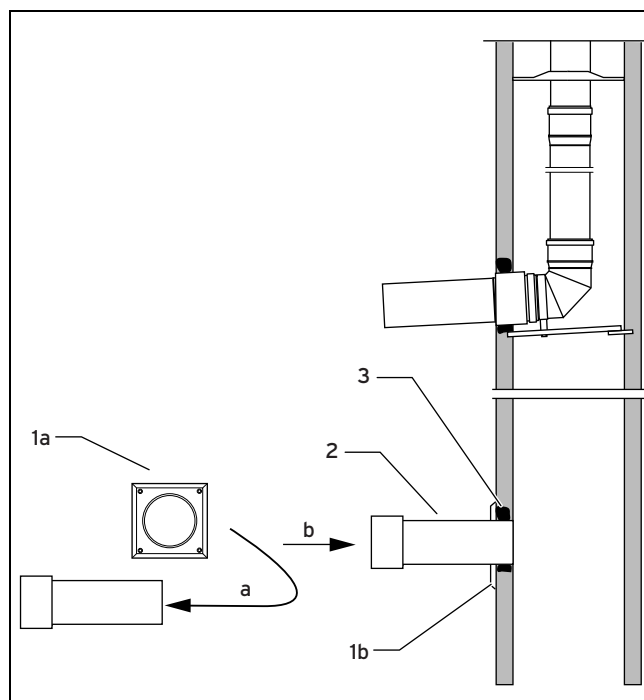
2. After each 87° diversion, install an extra clamp (1) to the extension.



3. After each 45° diversion, install an extra clamp (1) to the extension.

6.4 Installing the combustion air line

6.4.1 Installing the combustion air line in the shaft



- | | |
|---------------|-----------------|
| 1a Wall panel | 2 Air pipe |
| 1b Wall panel | 3 Shaft opening |

1. Mortise a shaft opening (3) that is suitable for the 130 mm diameter air pipe.

7 Installing the 160 mm diameter and 200 mm diameter systems

- Diameter: 130 mm
- 2. Place the wall panel (1a) on the air pipe (a).
- 3. Insert the air pipe (2) into the opening (b) so that the air pipe (2) and the wall panel (1b) are flush with the wall.
 - The sleeve must point to the boiler.
- 4. Secure the air pipe (2) with mortar and leave the mortar to harden.
- 5. Install the 130 mm diameter collar to the inside.
- 6. Install the extensions and diversions starting from the shaft and working towards the product.
- 7. If necessary, use a saw to shorten the extensions.

6.4.2 Installing the combustion air line in the external wall

1. Determine the installation location of the combustion air line in the external wall.
 - The air pipe must terminate on the building side that is closest to the flue gas opening.
 - Height of the intake port: 1 m
 - The air intake must be free of snow.
2. Mortise an opening that is suitable for the air pipe.
 - Diameter: 130 mm
3. Insert the air pipe into the opening so that it is flush with the wall.
 - The sleeve must point to the boiler
 - Downward gradient of the air pipe, outwards: 2°



Note

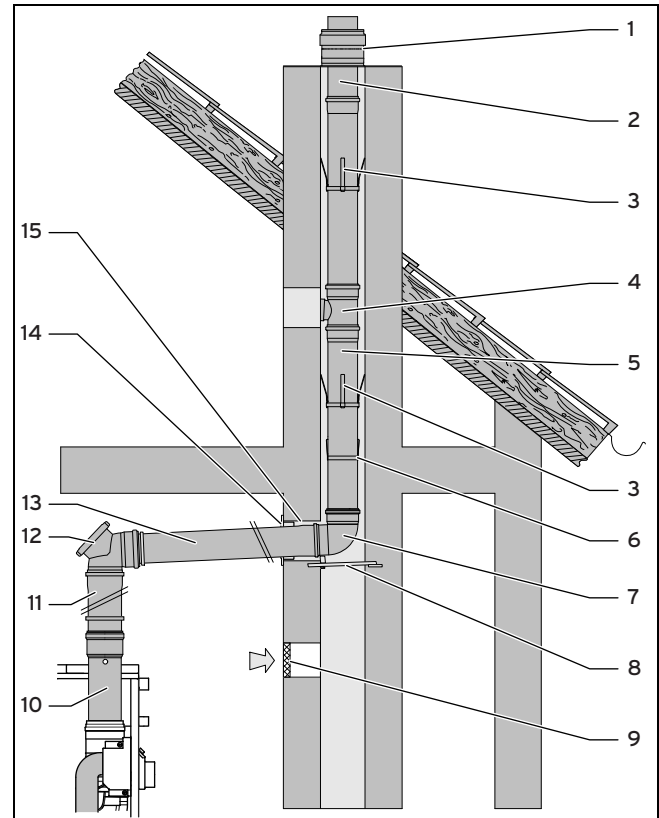
2° corresponds to a downward gradient of approx. 30 mm per metre of pipe length.

4. Secure the air pipe with mortar and leave the mortar to harden.
5. Install the 130 mm diameter wall collar to the inside.
6. Install the intake grille on the external wall.
 - The fins must be directed downwards
7. Install the extensions and diversions starting from the external wall and working towards the product.
8. If necessary, use a saw to shorten the extensions.
9. Insulate the air pipe when it is installed in environments with a high level of humidity and cold temperatures.

7 Installing the 160 mm diameter and 200 mm diameter systems

7.1 Installing the flue gas pipe in the shaft

System diagram



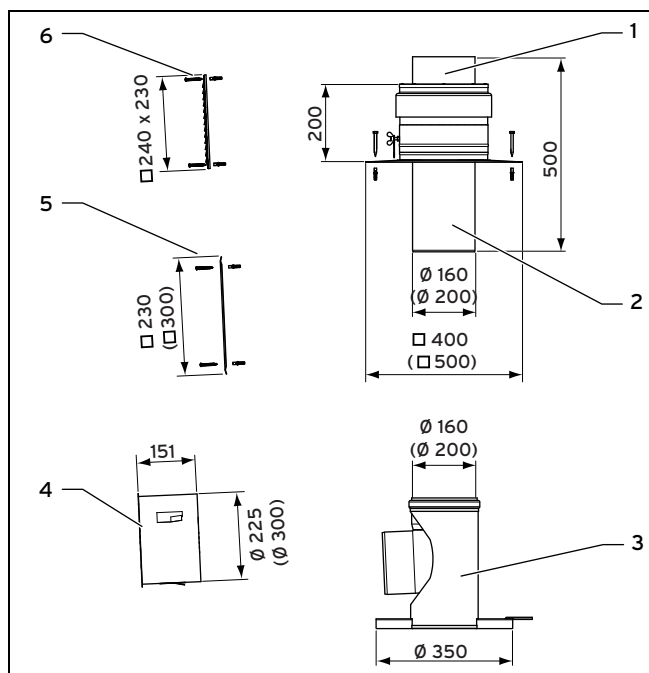
- | | |
|----------------------|-------------------------------|
| 1 Shaft cover | 8 Mounting rail |
| 2 Black flue pipe | 9 Ventilation grille |
| 3 Spacer | 10 Equipment connection piece |
| 4 Inspection T-piece | 11 Extension |
| 5 Extension | 12 Inspection elbow |
| 3 Spacer | 13 Extension |
| 6 Installation aid | 14 Internal wall collar |
| 7 Support elbow | 15 Wall duct |

The shaft dimensions for installing the basic set must be at least:

- 160 mm diameter system
 - 200 x 200 mm or 220 mm diameter
- 200 mm diameter system
 - 240 x 240 mm or 260 mm diameter

Installing the 160 mm diameter and 200 mm diameter systems 7

7.1.1 Scope of delivery of the basic set for the shaft installation, article number 0020095533 (160 mm diameter), 0020095534 (200 mm diameter)

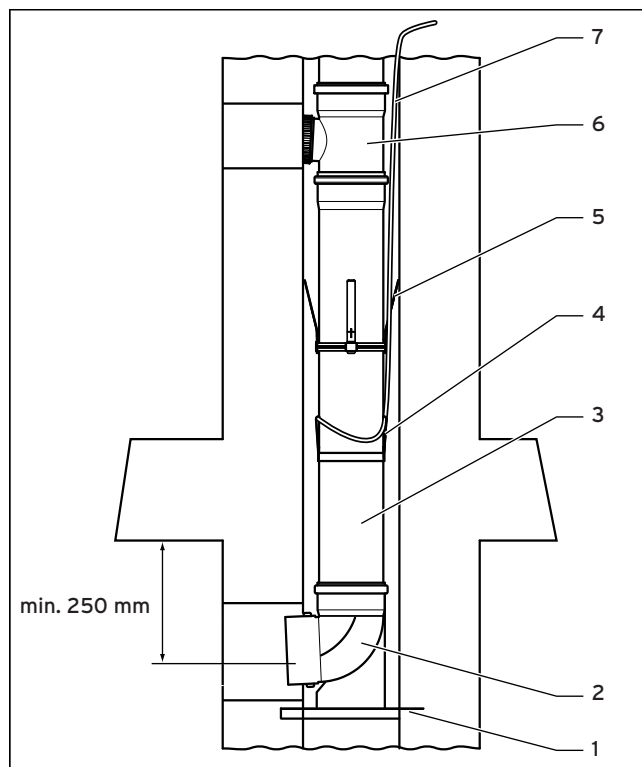


- | | |
|---------------------------------------------------|---------------------------------|
| 1 Shaft cover | 4 Safety pipe for shaft opening |
| 2 Flue pipe (PP), black (no sleeve), 500 mm long | 5 Wall collar |
| 3 Support elbow (PP) 130, 87° incl. mounting rail | 6 Ventilation grille |

7.1.2 Preparing the installation

- Determine the installation site of the flue gas guiding in the shaft.
- Drill a sufficiently large opening to allow enough space for installation.
- Drill a hole in the rear side of the shaft.
 - Diameter: 10 mm

7.1.3 Installing the support elbow

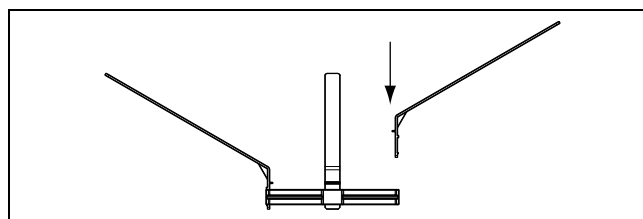


- | | |
|--------------------|----------------------|
| 1 Mounting rail | 5 Spacer |
| 2 Support elbow | 6 Inspection T-piece |
| 3 Flue pipe | 7 Line |
| 4 Installation aid | |

- Check that the mounting rail is long enough. Mounting rails with a length of 500 mm are also available.
- Insert the support elbow (2) with the mounting rail (1) so that the flue pipe is positioned in the centre of the shaft.
- For stability, point the opening of the mounting rail U profile downwards.
- Install the flue gas pipe on a support pipe (optional). (→ Page 25)

7.1.4 Installing the spacer

Applies to: 160 mm diameter system

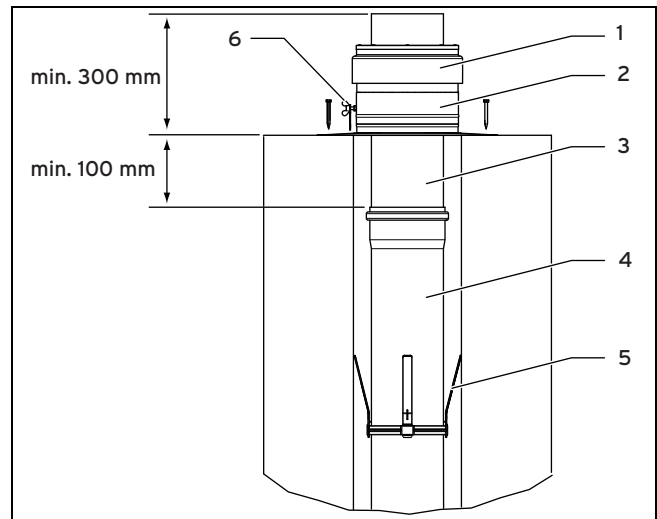


- Join together the individual components for the required spacer.

7 Installing the 160 mm diameter and 200 mm diameter systems

7.1.5 Inserting the flue pipes in the shaft

1. Install the installation aid (4) to the lower end of the first flue pipe (3), see section Installing the support elbow (→ Page 23).
 - The sleeve side of the flue pipe must point upwards
2. Use a snap hook to secure the line to the installation aid.
 - The installation aid may have sharp edges and cut through the line.
3. Use the line (7) to lower the first flue pipe (3) down far enough until you can insert the next flue pipe (6).
4. Slide the spacer (5) onto the flue pipe.
 - Distance between the spacers: ≤ 2 m
5. Insert the next flue pipe into the sleeve of the first flue pipe until they reach a stop.
6. Continue inserting a further flue pipe until you can insert the lowest pipe into the support elbow.
7. Remove the line from the installation aid. You can reach through the shaft opening to do this.



Caution.

Risk of damage caused by soot in the neighbouring chimney.

The flue gas pipe opening can be damaged by the effect of heat from the neighbouring chimney.

- If necessary, fit a stainless-steel end pipe rather than the black plastic end pipe.

7.1.6 Installing inspection T-pieces and elbows

Conditions: If the flue gas pipe cannot be inspected from the shaft opening:

- Install an inspection T-piece at a suitable location.

Conditions: If diversions are required in the shaft:

- Install a 15° or 30° elbow.
1. After every diversion, install an inspection T-piece as close as possible to the diversion.

7.1.7 Installing the shaft extension



Caution.

Risk of material damage caused by flue gas or dirt particles.

Flue gases or dirt particles that have been sucked in may damage the product or lead to malfunctions. If the opening of the flue gas pipe for the room-sealed product is immediately next to another flue gas installation, flue gases or dirt particles may be sucked in.

- Lift the other flue gas installation with a suitable attachment.



Caution.

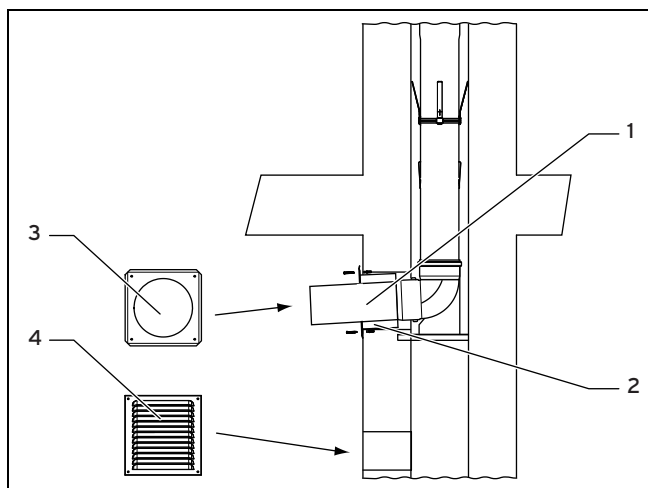
Risk of material damage due to thermal expansion.

Thermal expansion of the plastic (PP) flue pipe may cause the opening of the flue gas pipe to increase by up to 20 cm.

- Ensure that the necessary free space is available above the opening.

1. Install the black plastic flue pipe included in the scope of delivery for the shaft connection set.
 - The top flue pipe (3) must be resistant to solar radiation.
2. Remove the line from the shaft.
3. Slide the shaft extension (2) over the black plastic pipe (3).
4. Secure the shaft extension to the shaft side using rawl plugs and bolts.
5. During this process, secure the top cover with rear ventilation (1) to a fixing screw using the safety line included.
6. Ensure that the top cover (1) is secured to the shaft extension (6) using the wing nut (2).

7.1.8 Installing the flue pipe, safety pipe, wall panel and ventilation grille



1. Insert a 500 mm flue pipe (1) into the support elbow.
2. Insert the wall chuck for the shaft opening (2) into the borehole.
3. Secure the wall chuck with mortar and leave the mortar to harden.



Note

You can also use the wall chuck's annular gap as an opening for the rear ventilation of the flue gas pipe. You can then forego installing the rear ventilation grille.

Conditions: If the wall chuck collides with the flue pipe sleeve on smaller shafts:

- ▶ Remove the inner ring of the wall chuck.
- ▶ Fit the wall panel (3) that is contained within the scope of delivery over the flue pipe, but do not secure the wall panel yet.

Conditions: If the combustion air is to be taken from the installation room or guided through the external wall through an air pipe from outside:

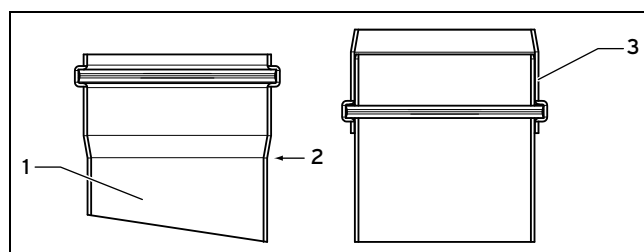
- ▶ Create an opening at the foot of the shaft to ventilate the flue gas pipe.
- ▶ Secure the ventilation grille (4).
- ▶ Secure the wall panel.

7.2 Installing a flue gas pipe on a support pipe (optional)

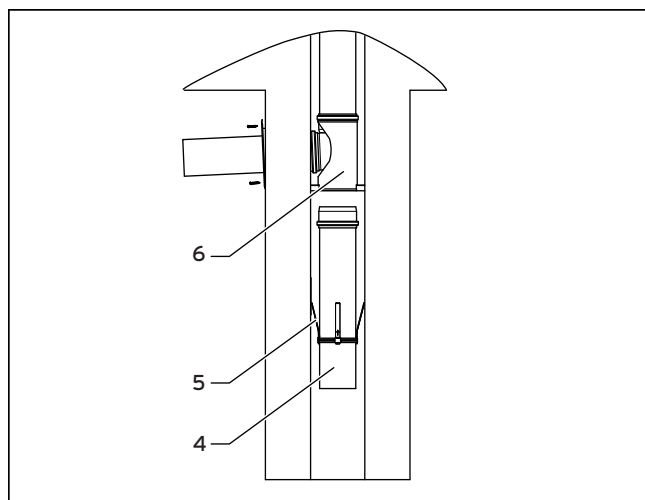


Note

The flue gas pipe in the shaft can also be installed on a support pipe instead of a mounting rail.



1. Saw through the flue gas pipe (1) at the marking (2).
2. Turn the sawn-off sleeve (3) around and slide it back onto the flue pipe.



3. Adjust the length of the support pipe between the shaft floor and the support elbow.
4. Install the spacer (5) on the support pipe.
5. Place the support pipe (4) with the sawn-off sleeve facing upwards, on the base of the shaft.
6. Place the support elbow (6) onto the support pipe (4).

7.3 Installing the vertical roof duct

7.3.1 Installation instructions

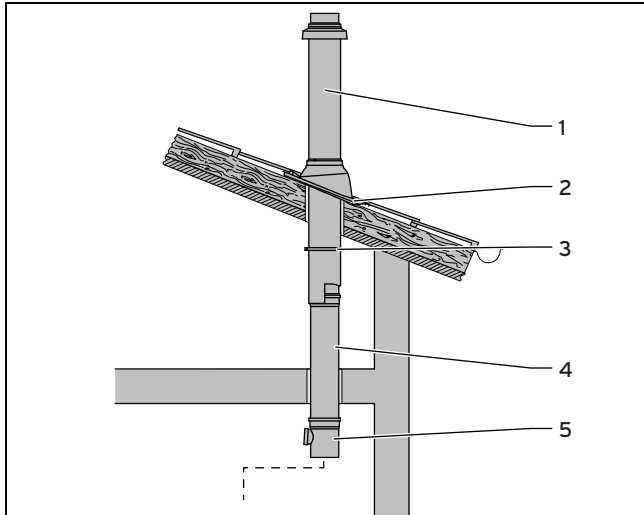
If the product is to be placed under the roof, the roof duct may be used.

You can use the roof ducts of the façade system (stainless steel). For the 160 mm system, there is also a black plastic version.

The pipes between the product and the vertical part of the flue gas pipe must be pushed into each other until they reach a stop.

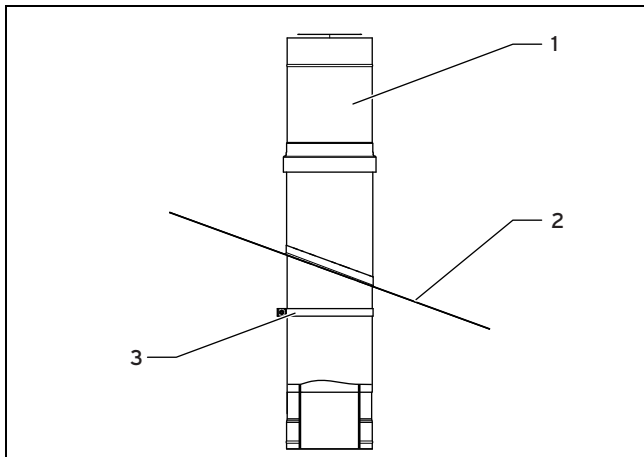
7 Installing the 160 mm diameter and 200 mm diameter systems

7.3.2 Installing the roof duct



1. Insert the vertical roof duct (1) into the pitched roof tile (2) or the flat roof penetration collar from above.
2. Align the roof duct vertically and secure the clamp (3) to a rafter or the ceiling.
3. Install the extensions (4) and, if necessary, the inspection openings (5).

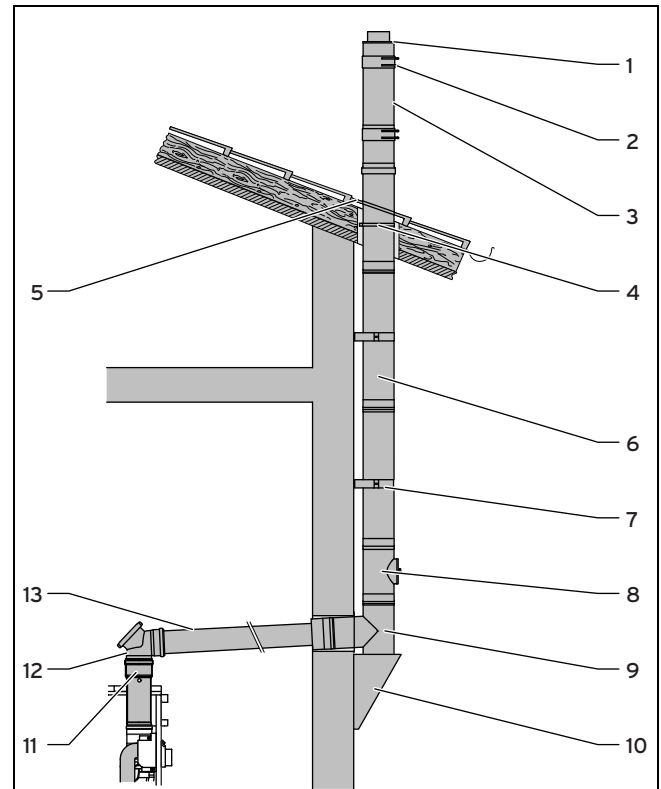
7.3.3 Installing the stainless-steel roof duct



- 1 Roof duct
 - 2 Pitched roof tile
 - 3 Fastening clamp
1. Place the roof duct (1) on the pitched roof tile (2) or flat roof penetration collar.
 2. Connect up all the flue components above the roof (extensions, opening piece, clamps).
 3. Attach the roof duct fastening clamps (3) to the rafters or ceiling.
 4. For the area above the roof, refer to the section Installing the flue gas pipe on the external wall (→ Page 26).
 5. Install the roof duct. (→ Page 26)

7.4 Installing the flue gas pipe on the external wall

System diagram



- | | |
|---------------------|-----------------------|
| 1 Opening piece | 8 Inspection element |
| 2 Clamp | 9 Support elbow |
| 3 Roof duct | 10 Support console |
| 4 Rafter mounting | 11 Product connection |
| 5 Pitched roof tile | 12 Inspection elbow |
| 6 Extension | 13 Internal extension |
| 7 Pipe bracket | |

Observe the static dimensions and precautions when installing an offset.

7.4.1 Static dimensions



Danger!

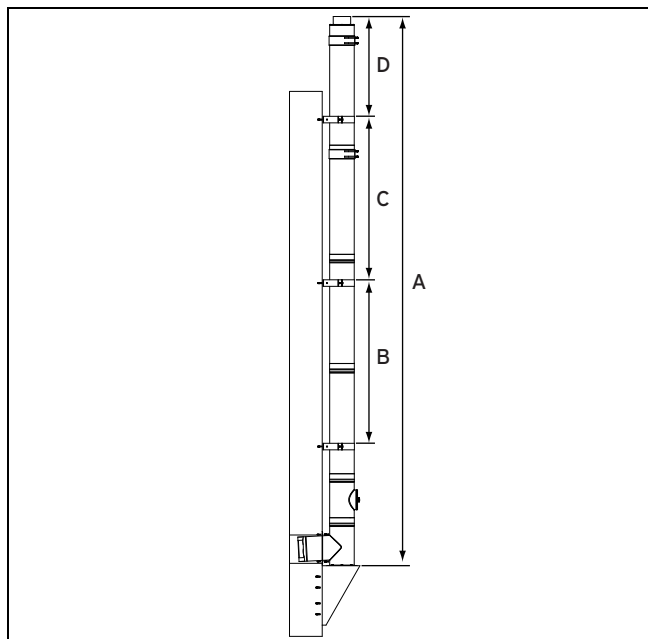
Risk of injury due to falling parts.

Exceeding the static dimensions may lead to mechanical damage to the flue gas guiding. In extreme cases, parts may become loose from the wall and fall, thus endangering persons.

- During installation, observe the static dimensions.
- Secure at least every second extension to the external wall using a pipe clamp.

Installing the 160 mm diameter and 200 mm diameter systems 7

Static dimensions of the flue gas pipe



- | | |
|--------------------------------------------------------------|-----------------------------------------------------------|
| A Max. 50 m (max. vertical height above the support console) | C Max. 2 m (distance between the two upper pipe brackets) |
| B Max. 2 m (distance between the pipe brackets) | D Max. 1.5 m (max. height above the last pipe bracket) |



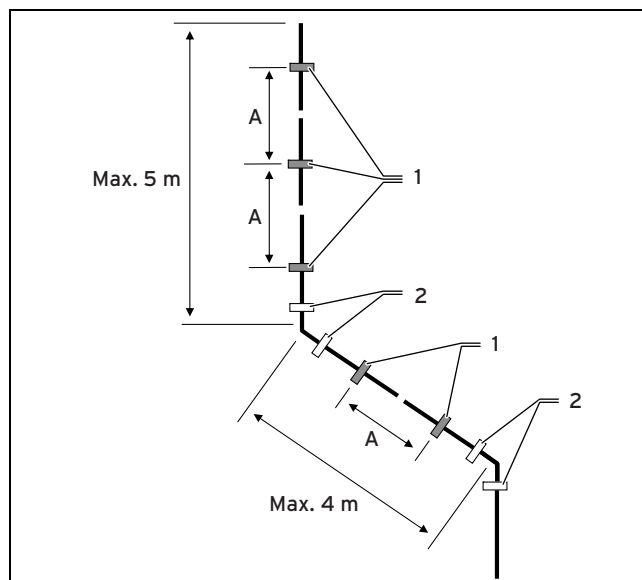
Danger!

Risk of injury due to falling parts.

The part of the flue gas pipe that protrudes above the roof must be sufficiently rigid. There must be no offset between the two uppermost pipe brackets (dimension C). An offset reduces the tensile strength of the flue gas pipe and can lead to rotation or loosening of the flue gas guiding.

- ▶ Do not install an offset between the two upper pipe brackets.
- ▶ Do not install an offset between the two uppermost pipe brackets (dimension C).
- ▶ Install air clamps at all connecting joints between the two uppermost pipe brackets (dimension C) and the uppermost section (dimension D).

7.4.2 Static dimensions for an offset of the flue gas guiding



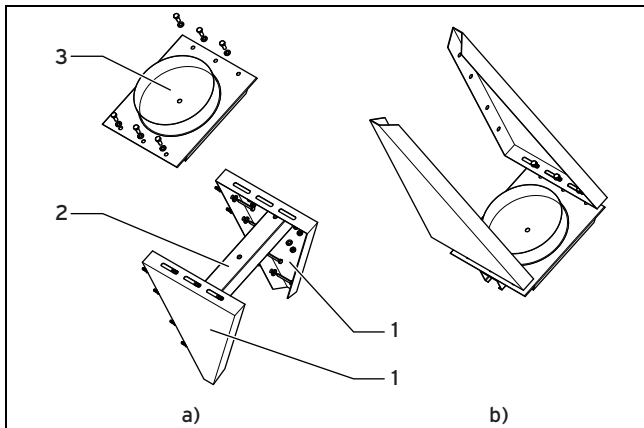
- ▶ Use 45° elbows.
- ▶ Only install one offset.
- ▶ Observe the following dimensions:
 - Length of the diagonally-guided section: ≤ 4 m
 - Distance A between 2 pipe brackets (1): ≤ 1 m
 - Length of the vertical section: ≤ 5 m
- ▶ Connect the 45° elbows to the extensions on both sides using clamps (2).

7.4.3 Preparing the installation

1. Before starting the installation, determine the route of the flue gas guiding and the number and position of the pipe brackets.
 - Observe the static dimensions.
 - The flue gas pipe must be positioned at a distance of at least 20 cm from windows and other wall openings.
2. Drill a hole with a core diameter of at least:
 - 160/225 system: 253 mm
 - 200/300 system: 303/353 mm

7 Installing the 160 mm diameter and 200 mm diameter systems

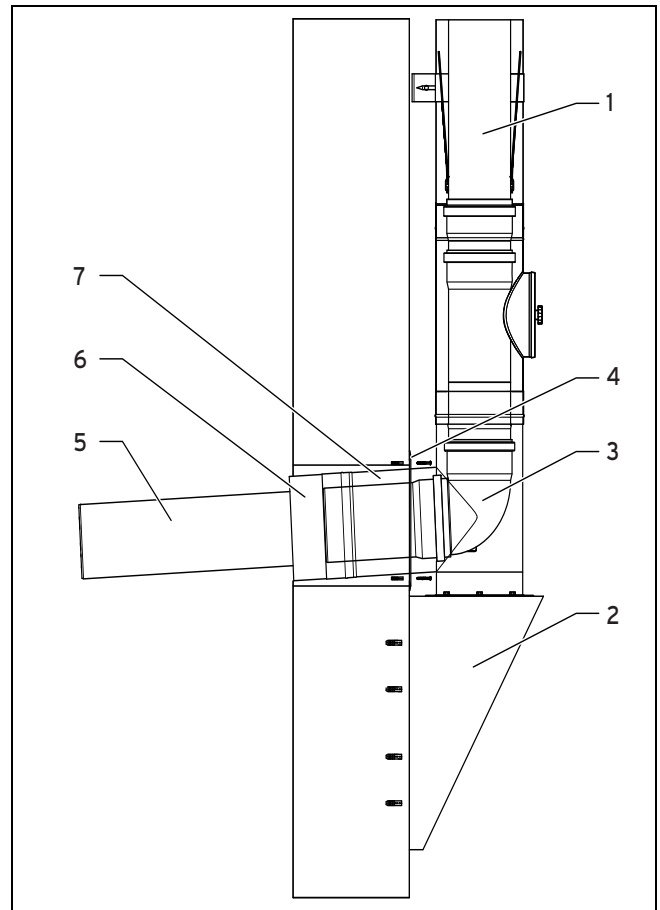
7.4.4 Assembling and installing the support console



1. Assemble the support console, which consists of 2 retainers (1), a carrier plate (3) and a U-profile (2).
2. Install the support console according to option a) (support console under the borehole) or according to b) (support console next to the borehole).
3. Fit the support console to the external wall.
4. Set the wall distances as follows:
 - 160/225 system: 160 mm
 - 200/300 system: 220 mm

◁ The support console and pipe bracket thus have an adjustment range of +/- 20 mm.
5. Tighten all screws on the pre-assembled support console.

7.4.5 Installing the connection for the external wall pipe



- | | |
|-------------------|-----------------------------------------------------|
| 1 Extension | 5 Internal pipe of the extension |
| 2 Support console | 6 External pipe of an extension (already shortened) |
| 3 Support elbow | 7 Support elbow air pipe |
| 4 Wall collar | |

1. Fit the support console (2) to the external wall.
2. Mount the support elbow (3) onto the support console.
 - The wall collar must be pushed onto the elbow. It is not possible to install this at a later time.

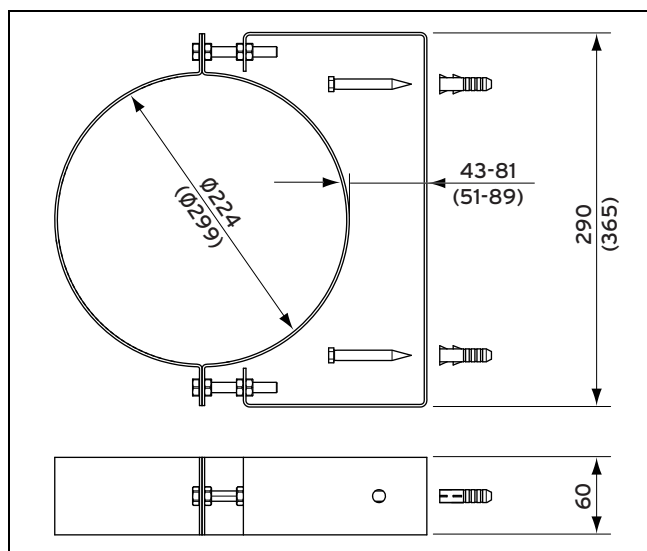
7.4.6 Installing the external wall pipe

1. Place the external pipe of an extension (6) with the sleeve from inside on the support elbow.
2. Disconnect the pipe for a clean finish on the internal wall.
3. Draw on the cutting line, remove the pipe from the hole in the wall and cut it.
4. Put the pipe with the sleeve back on the support elbow.
5. Install the internal pipe of the external wall extension (5) to the flue gas elbow of the support elbow.
6. Fill the gap between the air pipe (7) and the hole in the wall from inside and outside with mortar.

Installing the 160 mm diameter and 200 mm diameter systems 7

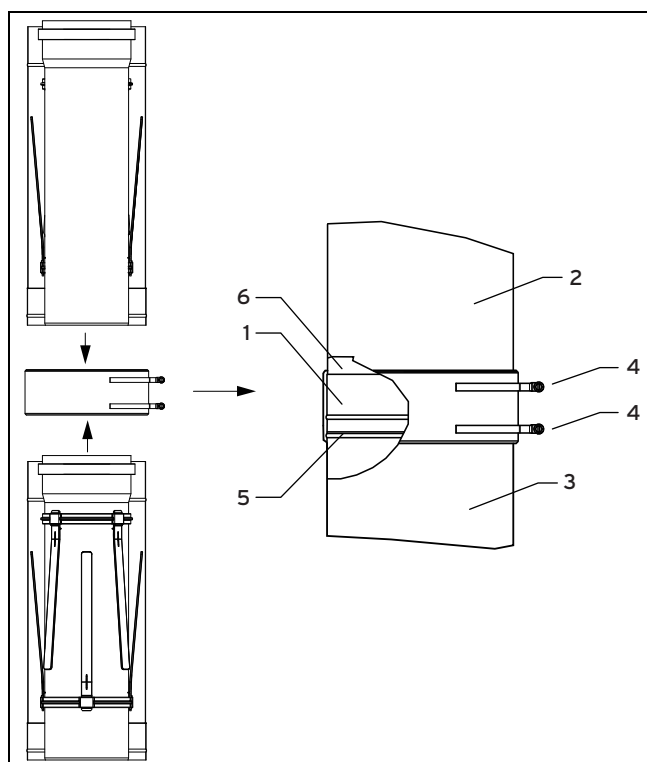
- The annular gap between the internal pipe and external pipe must remain open.
- 7. Leave the mortar to harden.
- 8. Install the wall collar (4) from outside.
- 9. Secure the pipe bracket.
 - Distance between pipe brackets: ≤ 2 m

7.4.7 Adjustment range of the pipe brackets



The adjustment range of the pipe brackets spans from approx. 50 mm to approx. 90 mm.

7.4.8 Connect the flue gas components of the external wall system



1 Air clamp

2 External wall element

- 3 External wall element
- 5 Seam
- 4 Safety screws
- 6 Seam

1. Install the flue gas pipes, the terminal and, if necessary, the inspection opening and diversions.
 - Distance between the opening and the roof area: ≥ 1 m
 - For vertical installation, clamps are only required when using offsets or in specific opening situations. Only the terminal is equipped with a clamp as standard.



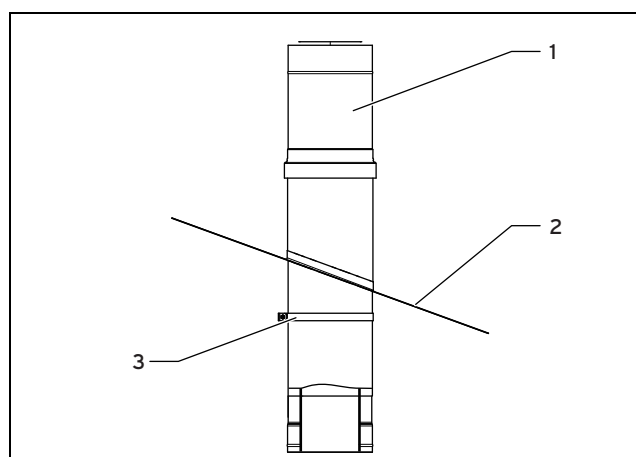
Note

The terminal is made from black plastic on the flue gas side and is therefore also resistant to UV radiation.

2. Tighten all wall fastenings.
3. In each case, attach a clamp (1) to the component that is to be connected.
4. Place the clamp (1) over the two external seams ((5) and (6)).
5. Tighten the safety screws (4).
 - Torque: ≤ 1 Nm

7.4.9 Installing the roof duct where there are external wall pipes

Conditions: The flue gas guiding is guided through a roof projection.



1 Roof duct

3 Fastening clamp

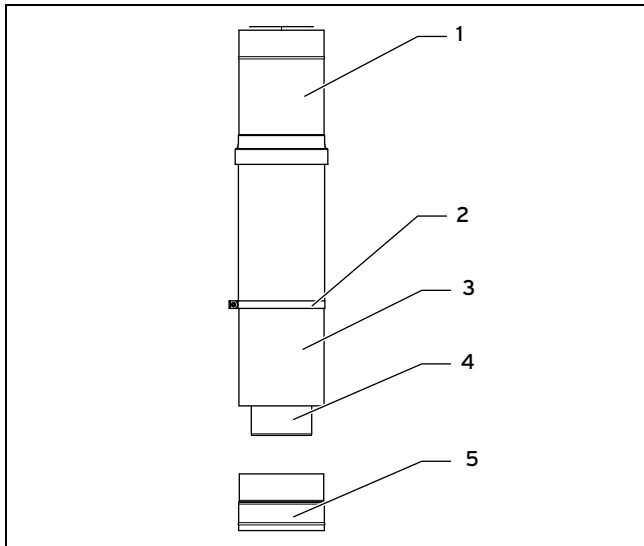
2 Pitched roof tile

- Install a roof duct to prevent rainwater from running down the external pipe.

1. To adjust the length, place the roof duct (1) on the pitched roof tile (2) or flat roof penetration collar.
2. Draw the edge to be cut on the appropriate component (extension or roof duct).
3. To adjust the length of the flue gas pipe between the roof duct and the lower part, you can shorten an extension or shorten the roof duct by a maximum of 20 cm, see section Shortening the extension (→ Page 30).

7 Installing the 160 mm diameter and 200 mm diameter systems

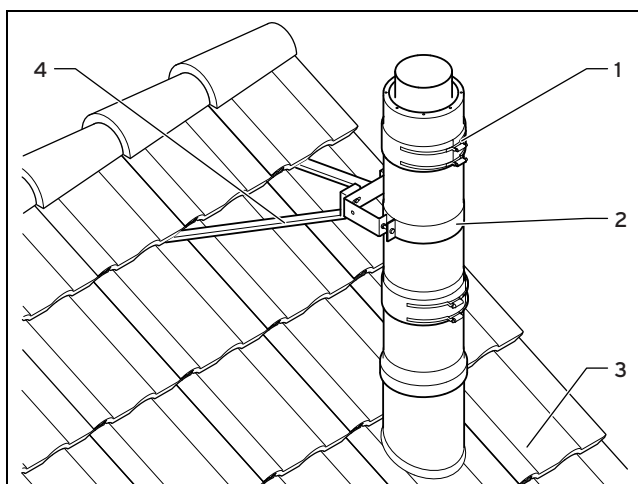
7.4.10 Shortening the roof duct



- | | |
|----------------------------------|----------------------------------|
| 1 Roof duct | 4 Internal pipe of the roof duct |
| 2 Fastening clamp | 5 Connecting sleeve |
| 3 External pipe of the roof duct | |
- Pull the connecting sleeve (5) from the external pipe (3).
 - Shorten the external pipe (3) and the internal pipe by an equal distance (maximum 20 cm).
 - Place the connecting sleeve (5) back onto the external pipe (3).
 - Connect all the flue components under the roof.
 - Connect up all the flue components above the roof (extensions, opening piece, clamps).
 - Install all the pipe brackets.
 - Attach the roof duct fastening clamps to the rafters or ceiling.

7.5 Stabilising the flue gas pipe

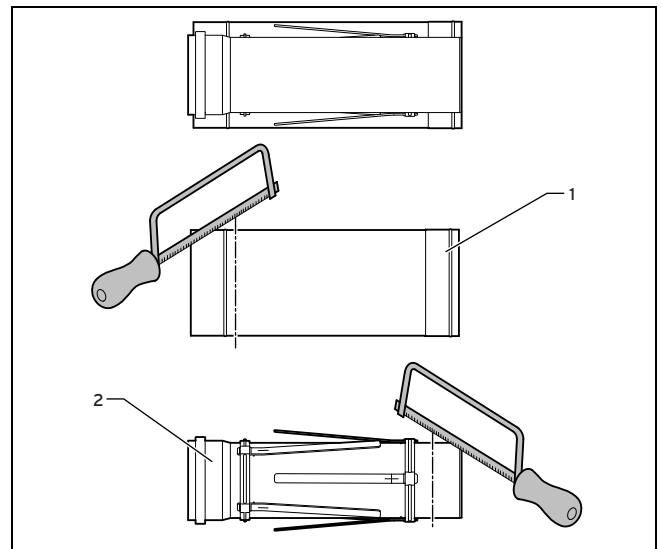
Conditions: The roof duct protrudes by more than 1.5 m over the tile (3).



- Anchor the roof duct above the roof.
- Attach clamps (1) to all the connecting points above the tile.
 - Attach a pipe bracket (2) to the pipe above the roof.

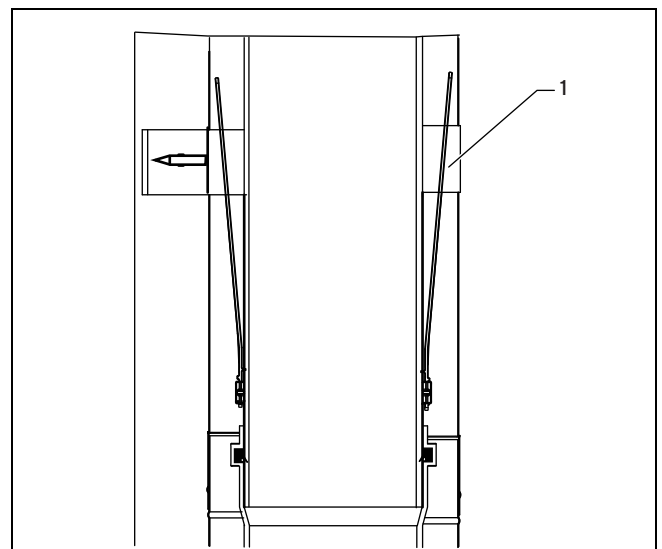
- Connect this pipe bracket to the roof construction using struts (4) or rope.

7.5.1 Shortening the extension



- Pull the flue pipe (2) out of the external pipe (1).
- Shorten the flue pipe and external pipe at right angles on their smooth side by an equal amount.
- Shorten the flue pipe and external pipe on the sides facing away from the sleeve.
- Slide the flue pipe back into the external pipe, see section Shortening the roof duct (→ Page 30).

7.5.2 Extension that can be shortened with external wall bracket



Danger!

Risk of injury due to falling parts.

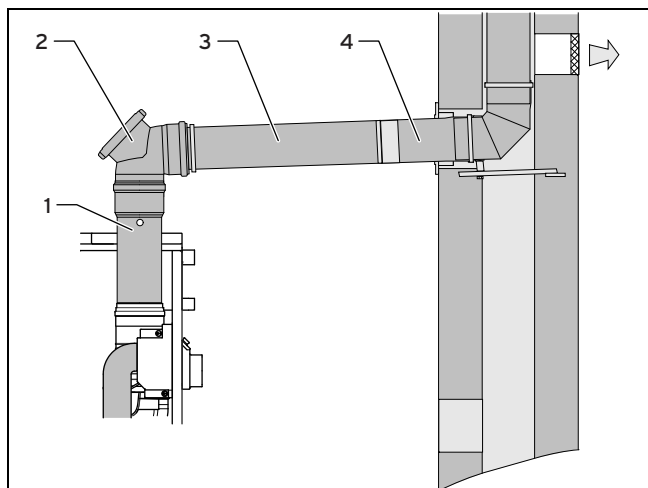
The external pipe of the shortened extension does not have a seam on the underside. The clamp provided cannot stabilise the pipe system and parts may fall off.

Installing the 160 mm diameter and 200 mm diameter systems 7

- To prevent this risk, follow the instructions below.

- Do not install this extension in the area in which additional clamps should be attached; or install an additional wall bracket (1) so that the system cannot become loosened and separated by wind load.
- Install an additional wall bracket directly above the shortened extension (1).

7.6 Flue gas connection and installing the horizontal flue gas pipe



Caution.

Risk of corrosion due to improper installation.

If the flue gas pipe is not designed correctly, the condensate trap does not work. Silencers and flue header boxes are not sufficiently protected against corrosion.

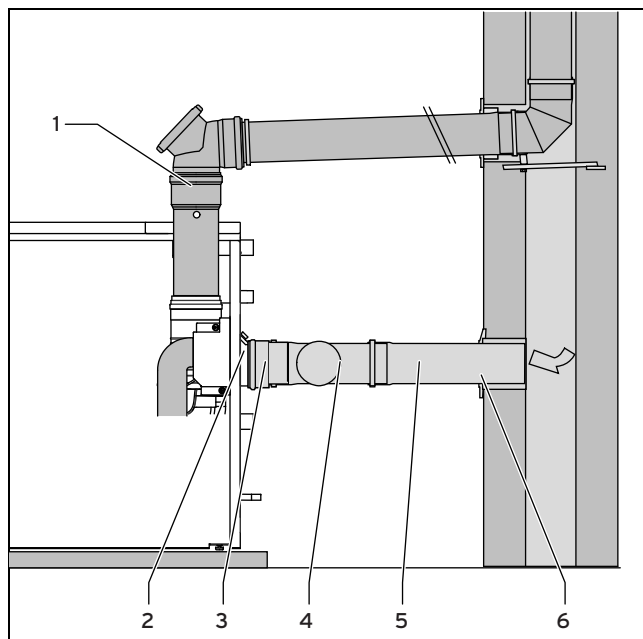
- To ensure that condensate that is flowing back is diverted through the condensate trap, you must **not** incorporate any diameter reduction in the flue gas pipe.

1. Insert the equipment connection piece with measurement opening (1) into the product's condensate trap.
2. For inspection purposes, install at least one inspection element in the flue gas pipe in the installation room of the product.
3. Install the extensions (3), inspection elements, and diversions (2) starting from the shaft or external wall (4) and working towards the product.
4. Finally, insert the elbow or the inspection elbow (2) of the flue gas pipe into the flue gas connection (1) of the product.
5. If necessary, use a saw to shorten the extensions.
6. Install the fastening clamps. (→ Page 21)

7.7 Installing the combustion air line

7.7.1 Installing the combustion air line in the shaft

1. Determine the installation location of the supply of combustion air in the shaft wall.

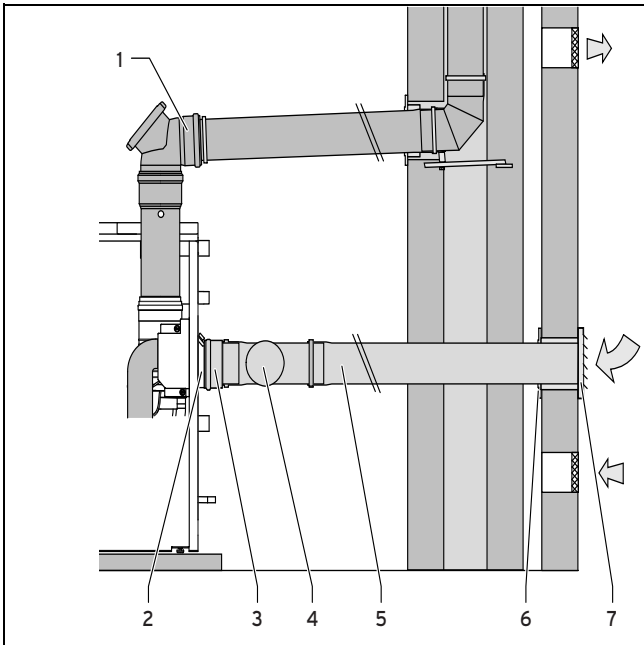


2. Create a borehole.
3. Place the 130/160 mm diameter air pipe adapter (3) on the air supports (2) of the boiler.
4. If required, install an inspection opening (4).
5. Insert further pipe elements.
6. Before inserting the last pipe, slide the internal collar onto this pipe.
7. Insert the last pipe (5) into the shaft opening (6) in such a way that the outer end is flush with the shaft inner wall.
8. Secure the air pipe using mortar.
9. Leave the mortar to harden.
10. Install the internal collar on the air shaft.

7.7.2 Installing the combustion air line in the external wall

1. Determine the installation location of the supply of combustion air in the external wall.
 - The air pipe must terminate on the building side that is closest to the flue gas opening. This prevents unacceptably high pressure fluctuations due to the effects of wind.
 - The air intake must be free of snow.
 - Height of the intake port: 1 m

8 Customer service



2. Create a borehole.
3. Place the 130/160 mm diameter air pipe adapter **(3)** on the air supports **(2)** of the boiler.
4. If required, install an inspection opening **(4)**.
5. Insert further pipe elements.
6. Before inserting the last pipe, slide the internal collar onto this pipe.
7. Insert the last pipe **(5)** into the shaft opening **(6)** in such a way that the outer end is flush with the external wall **(7)**.
 - Downward gradient of the air pipe, outwards: 2°



Note

2° corresponds to a downward gradient of approx. 30 mm per metre of pipe length.

8. Secure the air pipe using mortar.
9. Leave the mortar to harden.
10. Install the internal collar **(6)** on the external wall.
11. Install the intake grille **(7)** on the external wall.
 - The fins must be directed downwards
12. Insulate the air pipe when it is installed in environments with a high level of humidity and cold temperatures.

8 Customer service

To ensure regular servicing, it is strongly recommended that arrangements are made for a Maintenance Agreement. Please contact Vaillant Service Solutions (0870 6060 777) for further details.

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